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If found by anyone please send to

Professor Charles Shuchert
Peabody Museum
Yale University

Jan. 1925 - 1926

3776

Trip to Texas.

see map 560

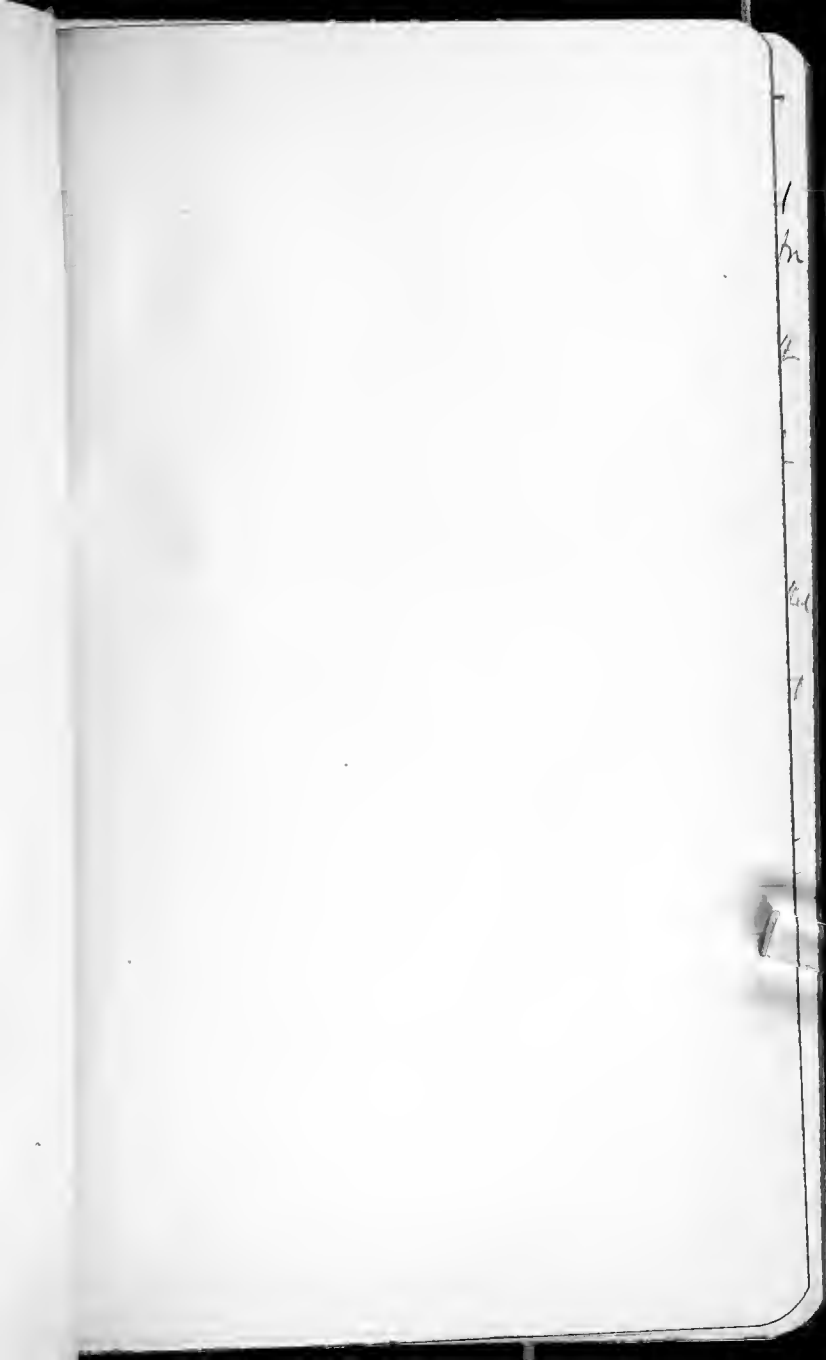
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Apr. 3 - Apr. 13, 1926

Glace Mt., TX

? dates on either end.

Grant Blanchard





New Haven, Conn. Dec 31/1925

Thursday

Got up and before having breakfast packed up the two suitcase cases, and then to the club for oatmeal, toast and coffee. Got \$2.50 and then the railroad ticket to Austin, Texas with sleeper service to New Orleans; cost \$82 ¹²⁴

Got to Plattsburgh, New York by 10.30 and found here Ruedemann, Goldring and Bucher. At 12.15 P. M. Luntan took me in his Ford to my rooms, and then to the railway, where I checked the large suitcase case.

The train was 15 minutes late so I just started at 1.10 P. M. The day is fine and sunny. At the depot I again met Ruedemann and Goldring.

On Hell Gate bridge into Brooklyn we had a grand view of the state, New York City and East River.

Retired early, about 8.30 just as we were getting into Baltimore.

Enroute to New Orleans, Jan 1-1926

Friday

Got up at Lexington, Va., and had breakfast before we left for Salisbury, N.C. The day is bright but the temperature is below freezing. Fire service in the Southern Division. By fire in the evening we are in Atlanta, Ga. Travel southward is not yet decided, but the card men are on the train and the public is warned of them by Pullman.

New Orleans, La., Jan 2, 1926.

Saturday.

Got here early this morning and at once, 7.20. Then transferred to I.P.R.R., checked my baggage and then saw again the quaint, but dirty and sadly in need of repair town.

At 10.30 I am off in a St Charles rubber-neck closed car to see the city, and as I have never seen it before. We went 5 miles S.W. out St. Charles street and across to the river levee, then to Lake Pontchartrain, and back to the city via the Creole quarters, the descendants of the White French and Spanish. Got back at one o'clock.

Louisiana

Then bought three pictures, and read a little in them at the Hotel Montell one in Royal and Iberville st.

3776

At 9.15 I am off on the Southern Pacific, having
lunch served in car etc. Will get to Houston at 6.30
tomorrow morning.

Sunday enroute to Austin, Jan 3-1926.

Got to Houston on time; the day is dark
and all nature is wet. Had breakfast at the
station and at 9.15 A.M. I am off for Austin.
Doctor Glascock formerly of Yale and of the Univ.
of Texas is also on his way to Austin and we
spend the six hours together talking about all
things. He now teaches Spanish instead of German.
The Univ. of Texas has 3000 students in Spanish.

I have taken a room in the new McCombs
Hotel and I am thinking of making this my home
during the next ten weeks.

Glascock said I would have no trouble in
saying all I want about evolution, only I must
not run down religion and speak against the
Bible. He thought I should give a lecture on the
evolution of man.

Austin, Monday Jan. 4-1926

Got up at the usual hour and was at Sellard's office before nine; he had not yet arrived. When he came we talked over the situation, and at eleven Professor Limonds arrived. It was agreed I should give the lectures between 7 and 9 P.M. on Tuesdays, Wednesdays and Thursdays. The three laboratory hours and all I will have to arrange with the students later on.

Professor Limonds has a fine office on one overlooking the entire city and the Capitol building. In the adjacent room is the Department of Botany and on the same floor the paleontological laboratory. So I will make this my headquarters.

Then Professor Limonds introduced me to President Johnson, a pleasant man of about 40 years, and a graduate student of Hadley's. His Professor is a geologist and chiefly in soil reading. It was soon my affair that I am to be established in all I have with respect to the University and especially the Biological Dept. that makes a curriculum to show the natural resources of the state and to know all of the

Geol. Dep. I am to be interviewed about the
Press and here is my "chance" to "bring out" the
wonderful geology of Texas and its resources,
all with the ultimate purpose that the oil men
will use it to raise either among themselves
or for the Legislature to appropriate one million
dollars for a museum building, equipment,
scholarships and fellowships. I will do all
I can but I am thinking that Spillars is
trying to make his \$100,000 mark in the
next ^{essentially} one million dollars. Good luck, even
if it all turns out as he thinks!

It appears Brett have fair facilities
to do his work, but as yet I have not seen
what plans they have to illustrate the guide
books of the many formations.

Austin, Tuesday, Jan 5-1926

Was interviewed by the Press this afternoon, by Mr Hornaday. His interview was all towards the application of geology towards the natural resources of the State. He knows absolutely nothing of geology, and when I used the words "granite and older rocks" he called them technical terms and got somewhat confused. At the end of the long interview he admitted that he could not be able to write an intelligent report and wanted to know if I could go over his report and adjust it. Such is publicity in ^{Science} ~~the~~ here in Texas but everywhere in America, by reporters wholly untrained for their work.

At seven in the evening Professor Simmons introduced me to the class in a very few words. I expected a class and audience of about 25 persons but there must have been between 60 to 70 students men and three ladies. Dean Harper of the Graduate School, ^{and} Professor Simmons and Sellards were present besides several instructors. Just how many spectators because towards a degree I do not yet know.

Thursday, Jan 14-1926.

I have now given six lectures in my course on Stratigraphy. At least one I have from 30 to 60 men and women. As far as I can learn all are well pleased. Most of the evenings I go to the University via the hills and back to the Creston Hotel via Sellards or Simons car. Lately Paul Leach has a suburface geologist with the Humphreys Co at Houston takes me in his fine Chrysler to the lecture.

Looking up the Austin Quadrangle I see no marked
E. thompsoni Austin, and then on the Colorado rim at
Montopolis. To Delvalle and across Onion
Creek to the first marked rise across the road. The bluff
faces Onion Creek that soon goes into Colorado River.
The bluff is known as East Base and is a triangulation
station. The horizon is lowest Navarre, and has
Euogyna costata and not E. ponderosa = Taylor.

Friday Jan. 15-1926.

Today Paul Seashore at 11:30 took me in his car to see some fossil collecting ground.

We went southeast over the Upper Cretaceous along the south side of the Colorado River and at 11 miles from ^{the land rises and} Austin we turned in to the ^{high} bank of the river, ^{= "East Base"} where there is an exposure of about 35 to 40 feet of the Chavarron ^{formation} ^{of the Cretaceous}. It is all a ^{hard} fine clay with no sand rocks although some thin layers contain thin shelled fossils that are very readily are ^{one E. costata} Exogyra (2 species) that is about ^{one-half} the size of the Exogyra. Found also in the shelled one large Trochus and a piece of a radix like shell. In the upper part gave there was an abundance of small things, mostly bivalves with some tubes of amites. The sea bottom was then a soft mud bottom, and I tried to see to what the Exogyra were attached; all appeared to have been attached about the same place of attachment, and then lost here at any time of life.

Just what this very name Upper Cretaceous means in regard to the shore and land I cannot make out. I must look more into this matter with Seashore.

Then left East Base and passed Barfield and
Aysium to Caldwell's gate. Then ^{north} across the farm
to a bend in the Colorado River east on ^{down stream} of the
boundary between Travis and Bostrop counties. Dry
Creek comes in a little ^(one half mile) farther down stream. See
Bostrop Quadrangle. (Miss Sanders call this the
One-half ^{mile} above the mouth of Dry Creek and $3\frac{1}{2}$ to 4
miles down-stream from Decker'sville, Colorado River.

Above the Panamericardia bella bed is a "dark
gray sandy clay", and above this "a quite similar bed
characterized by the greater abundance of the coral
Flatellum conideum Vaughan." Here Sanders
has 6 Trams, 1 coral, at least 5 pelecypods, and
16 gastropods. "The Midway Biler contact probably
occurs not far below", means down stream. In my
fossils some from below Midway.

We then continued about 7 miles farther S.E.
across Upper Cretaceous ^(Cenomanian) fine farm lands when there
was a little rise in the country, making the basal
Midway - Eocene. There was a perceptible dip sea-
ward of these sandy beds but had an abundance
of large flat concretions. Another mile ^{or more} S.E. brought
us to the gate of J. O. Caldwell's farm, and then
it was 1/2 to 3/4 miles to the river to the fossiliferous
Midway. What we saw here was less than
10 feet ^{higher} of ^{higher} all light fossiliferous. Below
for 5 to 6 feet to river ^{level} was greenish-black very soft
clay splite with lenses ^{of} banding ⁱⁿ small nests
and large ^{in places} atoms (these atoms are foot thick) that
made a banded layer (took me large lump).
Most of the shells are double valved and are one
the impression but they are in their original habitat
and probably held in place by a fissure. With these
saw almost nothing else.

Above the Wheeler bed ^{about 2 feet} in a very fine grained
glauconite some of which are saw and more than 5
feet, and our collecting was only the central zone.
Here were many kinds of ^{small} gastropods and smaller
bivalves along with several species of cup hexapods.
The clay was so wet and soft that I doubt if

Then out to the highway and I.E. to the road going to
Mark's Ferry across the Colorado River. It was in the
Hemphill Prairie that we got the reptiles, some hun-
dreds of feet above the base of the Dilcox.

In the evening J. H. Beede called to see me.
We talked about Texas geology.

my fossils will preserve on their way to sale.
Foraminifera (Nodosaria up to $\frac{3}{8}$ inch long) were
common.

What should be done here is to get out the flint
concrete in blocks and covered with plaster and cloth,
and then cleaned at home. When this is done I am
sure from 50 to 200 species will be the result. It
is said to be the first Midway place for fossils.

Then we motored out to the highway and
went 2 miles further S.E. to a road that went N.
Along this road we went less than 2 miles to banks
of the very thick shelled and long beaked Latvia.
They make banks from a few feet up to 10 or
10 to 20 feet thick in the Wilcox formation. This
is O. Casey Gardner.

In the morning had a long talk with one of my
"old student's" Clifton M. Keeler about some good
Comanchian collecting in the Edwards near Center-
point. On land of J. L. Keitt, one mile east
of Centerpoint, Kerr Co., on old San Antonio
Trail. The best collecting is on the banks of Verde
Creek and Guadalupe River. Keitt can
take care of us over night.

According to Hill and Langhans Flier (Austin Quadrangle)
all that we saw is Glenrose formation - all the way from
Mt. Bonnel down to Bull Creek.

These are Paracystis prunifrons Craig

The Requienia bed is low down in the Glenrose.

BOOSTS CROP PROSPECTS

Snow Jan 23-24-1926.

Ranks of Snow-Men Appear As Austin Celebrates 25-Year Record Fall.

Old and young in Austin continued a winter frolic Sunday as the heaviest snow of history in this section of the state melted under the sun's rays which appeared from behind grey clouds Sunday forenoon for the first time in over 36 hours. The record breaking snow which began falling at 6 o'clock Saturday morning continued steadily through Sunday night and until 9:30 o'clock Sunday morning making a continuous fall of over 24 hours and spreading a six inch cover of white over the city and surrounding country. According to old-time residents nothing comparable to this blizzard had ever been seen here.

Youthful residents of the university district and the downtown section, revelling in the heaviest snow seen here and the first real snow of the year, seized the opportunity for winter sports, and although their equipment was hastily improvised, several sleds were seen on hills of the city Sunday morning before traffic had changed the six-inch snow into dirty slush partially covering the streets and filling gutters. The principal sport of the morning was snow-balling automobiles and pedestrians, and both in the university district and downtown, of making hundreds of "snow men."

Downtown Battle Ground.

The corner of Seventh and Congress avenue became a snow-ball battle ground about 10:30 o'clock Sunday morning when groups gathered on opposite sides of the street and pelted passing automobiles or threw snow balls at the rival group. Later in the morning young men had lined each side of the block between Seventh and Eighth streets and were showering automobiles with snow balls from the time they entered the block until they left it.

Snow Sculptors Revel.

Snow men in the yard of Roy A. Miller, 604 West Sixth street, and at the Central and Guadalupe street fire stations, attracted particular attention. That at Central station was more than 15 feet high, and 22 feet around at the base.

Young women on Twenty-sixth street went in for artistic sculpture in modeling out a woman's figure, to almost lifelike shape and realism.

Streets throughout the downtown section were rivers of slush as soon as the snow started melting about 11 o'clock. Gutters were filled and streams of water were flowing in the centers of some streets.

Co-eds Are Pelted.

Co-eds continued to draw the fire of students on Guadalupe street at the university, and girls wearing woolen anklets over their hose were especially pelted.

Church attendance was cut over half because of the snow, according to reports from several downtown churches. One Sunday school superintendent said his Sunday school members were playing baseball with snow balls and that attendance had been cut over half.

The snow melted rapidly after the sun began to shine about noon Sunday and early in the afternoon the slush had practically all gone into gutters.

Actual precipitation during the Saturday storm was .41 inches, according to the official reading made by H. H. Henderson, weather observer. In measuring precipitation, snow is melted and a rain gauge is used for determining the inches of actual water. Temperature remained at 25 degrees throughout Saturday, but mounted to 30 degrees during the night and early morning, according to the official reading made Sunday morning.

Austin received a total fall of seven inches of snow during the snow of Saturday and Sunday, according to available information. The fall in other towns and cities in central Texas was as follows: Lockhart, 6 inches, 50-year record broken; Blanco, 6 inches, heaviest in history; Elgin, 6 inches; Thrall, 5 inches; Bartlett, 6 inches, heaviest since 1917; San Marcos, 6.75 inches; Austin, 7 inches.

The following snowfall was reported Sunday: Johnson City, 2.50 inches; Cherokee, blanket of snow; Bertram, heavy snow; Floresville, steady snow; Elmendorf, 2 inches; Big Wells, 3 inches; Devine, 4 inches; Austin, 7 inches; Flatonia, 6 inches; Burnet, 6 inches; Berthab, heavy fall; Taylor, 6 inches; Hallettsville, 2 inches; Nordheim, 6 inches; Yoakum, 3 inches; Victoria, 2 inches; Comfort, 10 inches; Bloomington, steady fall; Rockdale, 3 inches; New Braunfels, 2.50 inches.

Texas' Oil Wealth.

ACCORDING to the Dallas News in 1925 Texas produced 150,000,000 barrels of petroleum, the price of Texas oil throughout that year averaged about \$1.75 a barrel and on that basis the value of petroleum in Texas for that year exceeded \$260,000,000. Is there money in oil?



Laturday Feb 13, 1926

Took the buggy to 34 street North Austin, and then walked for half an hour to the locality in the tip of the Georgetown. This last side locality faces the rifle-ranges. Got more of the same things gotten of Jan. 30. There are two kinds of echinoids here. The common one is H. elegans; chasing some of these are overgrown with oysters and vermetus; evidently they did not remain buried after death in the muds, but were washed out by the waves. Got some big oysters.

Collected by myself at Shoal Creek on Feb 15. Got 2 other Enallactes and many fine E. arctica and Cosmophoros. Also a good lot of E. elegans.

Saturday, Jan 30 - 1926

This afternoon Dr. Sellards took me in his Ford to see some Washita collecting ground. We went northwest about $3\frac{1}{2}$ miles from the center of Austin in or about $1\frac{1}{2}$ miles, more from his house, on the road to Mt. Bonnell. At the furthest out loc. we saw the top of the Red River clays, about 20 feet thick and just beneath the Buda limestone. The latter yields but few fossils and just none. The top of the Red River clays turn with fine free specimens of Egyogysa arctica and some good Brachyala mucronata. Other fossils appear to be absent in these dark blue clays.

About $\frac{1}{2}$ mile S.E. beside the road - down the hill - is a fine exposure of near the middle of the Georgetown limestones and shale partings. Here fossils are common but few good ones are to be had as most of them break up in weathering out. Got six good Hemiacosta depans, one Nautilites, many Lingula inaequalis, two Laceras and 2 Trilobites. Saw many ribbed Eleutheronia and some large Orthis.

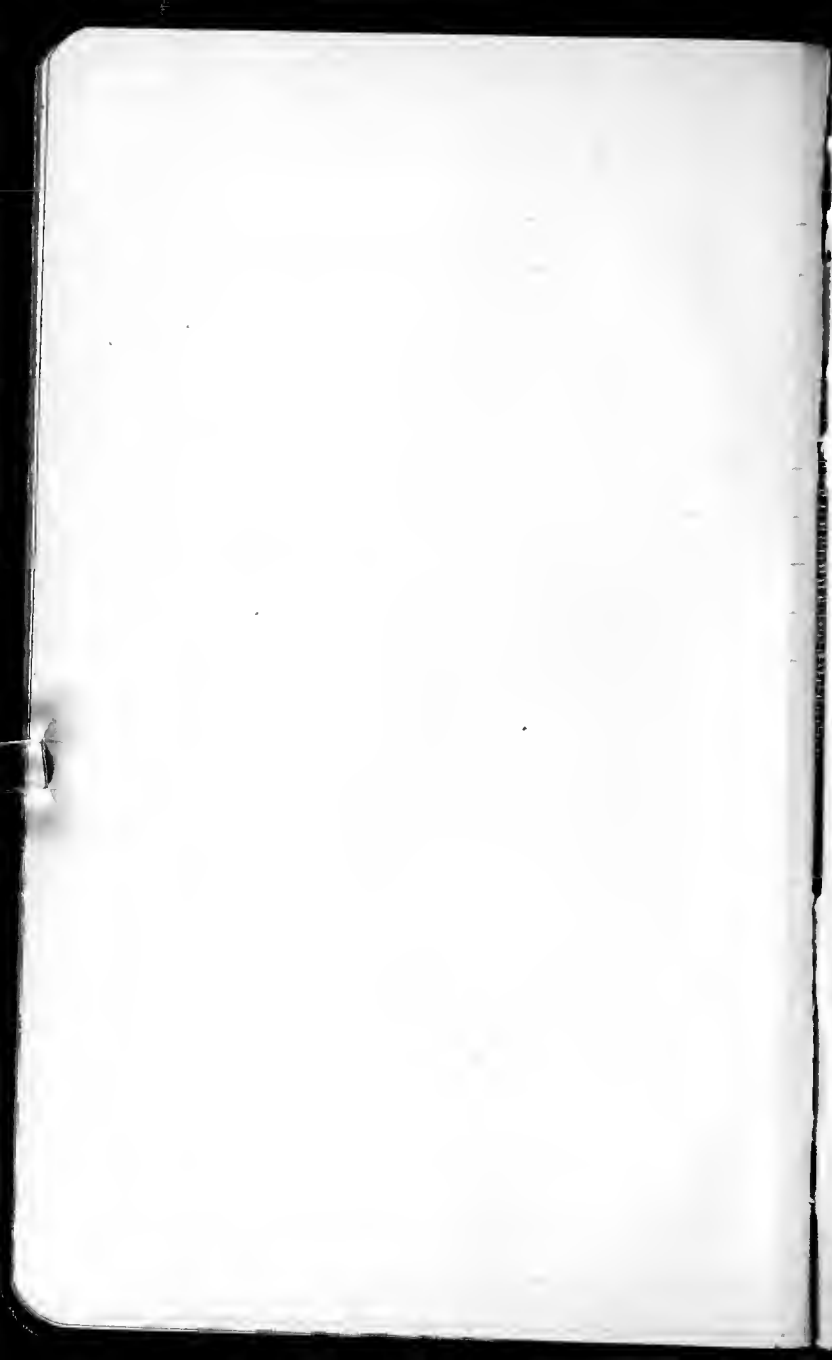
In the Red creek, nearer Austin we collected some in the top of the Red River clays. At the very top we got two Orthis. E. arctica in masses and the Red here, Took two good slabs of them.

On Shoal Creek over the ^{limestone} ~~limestone~~ comes the
Cape Ford laminated fine sandy shales, partly
then limestone, and fine sandstones. The whole is
exposed shows about 8 feet. Many of the paper
thin layers are replete with (ganoid) scales, long
and slender teeth and occasional fish bones. Other
layers are crowded with small Ostrea like
angusta, while one of the thicker sandstones has
small and large fragments of Inoceramus
latitatus (is corrugated). It is an unmistakable
Colorado assemblage. Whitney and Brinton both
say not a single species passes from the Washita
into the Colorado. The disconformity therefore
means considerable if a time break. The actual
contact here is covered over by talus.

The presence of sand and pebbles indicates
shallow water, and the highly comminuted fish matter
also shows wave work. Probably the deposits re-
present a depth of around 50 feet; saw no pulling
up of the bottom, nor of channeling.

Saturday, Feb 6 1926.

At 6.30 this evening I gathered with about 10 others (among them President Aflam, Sellands, Pearce, Whitney, Lonsdale) of the Texas Univ. interested in a State Museum. To be connected with the University. After a good dinner served at the Univ. Commons, I was asked to make the opening address. I read just out of my head Harden's dedication Address, and then launched out for the need of a University Natural History Museum. Pearce spoke next, then the Director of the Art Museum and several others. Finally President Aflam spoke and showed that he was in sympathy with the idea and that he had already noted their interest in the matter. But he also spoke of the difficulties of raising one million dollars for a building, but would suggest some other propaganda to be done. I then moved that we organize ourselves into a Museum Association which was done. Prof. Pearce was elected President with Sellands as Secretary. These two officers with three others constituted the Executive Com. to prepare their notices, and circulars. As some money is needed at once I rose and made a present of \$100. The fall is now moving, and then will be good results.



Saturday Feb 20-1926

Spent with Sellards this late afternoon collecting in the Walnut slugs at road metal quarry six miles NW of Austin Texas, just S.E. of Dry Creek on road to Bull Creek. This quarry is also a sand, and from the rock in the face of one of the faults of the Balcones system mostly the half of the slugs is composed of immature *Bythaceras*, (*Bythaceras texanum* affinis) and casts of gastropods. Of irregular corals, we got 24 that were restricted to a more muddy zone not over four feet thick. The ammonites *Sphenodiscus* was very rare. The whole thickness of the zone not exposed is about 10 ft.

If we had had four hours more here we could have gotten a great many more good fossils. In fact this locality had the greatest abundance of fossils and in greatest abundance. Outside the zone none of the molluscan preserve the shells. The *Bythaceras* zone was below, about 10 feet thick, then the ichnoid layer above followed by a zone of about 2 feet with the layer and last *Bythaceras texanum*.



Sunday, Feb 21 1936

After dinner walked west about 2 miles to Bailin Springs. The springs (rather large) come out of the fault plane with the Georgetown to the S. and the Austin to the N.

Collected in the top of the Georgetown and saw the rugulation thinjs. Took away but little. In the small pit above the Georgetown along the road we see the Red Rio blue clay and above it the thin Buda li. In the clay just beneath the Buda glt we coral. Out of the Austin took some round thinjs that may be sponges; they are from a rippled layer (oscillation ripples).

The Buda has rotitic-like layers and these have irregular flat clay inclusions that are due to storm waves.

Houston, Feb 26 1926

Left Austin last night at 10.40 and got here at 7 A.M. Put up at Rice Hotel. Had a good night in the Pullman. Then called on De Wolf of the Humphreys Oil Co and arranged for this evening talk. Spent most of the time with Mr. Leashae.

Next called on R. F. Baker and was with him to the University Club for lunch. Then called on Wallace Pratt but he was in court. Tried to see Mr. Deussen and Miss Lane but they had moved to another building that I could not locate. Miss Elisor was at home with a cold, and as Mrs. Afflin has quit all paleontological office work I saw but of little of the paleontologists here.

Miss Knicker's place in the Texas Co. is now taken by Mr. Miller of Kentucky who got his subsurface paleontology from Sallaway at Columbia. He acts as if he is by all means the best posted man or person on forums here in Houston.

At 3 P.M. went with Mr. Vetter to the Houston Club to arrange for a stand to hold my 18 maps to illustrate my talk on Texas Shore Lines.

There were about 65 of us to dinner at the Houston Club which began about 7.30 P.M. There were about 20 ladies and among them the paleontologists Mrs. Plummer and Miss Lane. The younger Hanna was also present. Among the older men were De Wolf, Pratt, Deussen, Dumble, Baden, Hager (chairman), Barton and others whose names I do not recall.

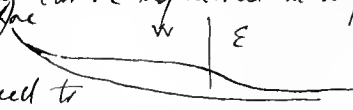
(8.30 - 9.30)

I spoke about an hour, and held the interest full, and then my remarks were opened to questions or criticism which I had invited. Deussen believed that I was had shown the salt of the domes to be of Permian age. I showed it to be impossible and besides a bacterium cannot prove the age of any salt.

I had said that since an average salt plug had about one cubic mile of salt, that if it came from a bed 50 feet thick it would have to have flown together from an area of 50 miles radius. I was corrected to 5 miles radius. Therefore the salt has in no case flown very far.

Dumble said since the Cenozoic formations are thicker towards the sea, therefore Llanoria must have been present even then. He is clearly in error since

this thickening can be explained in a perfectly natural way

 Hanna agreed to this and said the subsurface minerals all appear to come from the W. Miller later told me that the Cret. forams in the Miocene (2 very characteristic forms) are from the Austin-Taylor formations to the west. Pratt confirmed Dumble that the Cenozoic thickens to the E. but drew no conclusion. The next day R. F. Baden told me that the Cenozoic in the E. he believed to be at least 20,000 feet thick, and that the surface outcrops of the Cenozoic to the N. of Galveston are around 10,000 feet thick.

I made the point that the Inner Salt Domes get their salt out of the Comanchian. In the Pine Island field E to Bellevue field the Comanchian is in red beds and there is here at least 75 feet of anhydrite in the zone. Furthermore the Trinity and Fredericksburg thin out against Llano and that is a fact of the Washita geosyncline.



Of what age the salt is in the Coastal domes I could not say, but surmised it to be of Eocene age. I added that I knew of no acid thins in the Eocene.

The leading geologists probably were not convinced with my presentation, but I think no one will claim to know the actual age of the salt in the domes.

I understand there is Permian underground at Uvalde, Texas. The red beds and anhydrite at Malone Texas called by Crapin Upper Jurassic. C. L. Baker has shown in an unpublished small note of Permian age.

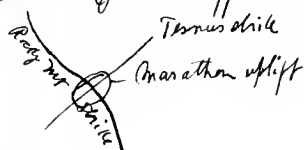
Dumble said there is much anhydrite a gypsum in the older Cenozoic of N.E. Mexico. Look this up.

Plummer and Stager trace the Ceff. Mt trend S.W. across Gulf to about Houston area. Plummer said there was an underground ridge south of Jackson Min that has the trend of the Ceff. Look up this matter; it cannot, however, apply to older time than the Permian.

Prout shows in his paper of 1926 that the Mt of Okla., Ark and beneath Red River have an E-W or better slightly S.E trend. Runs counter to the

Appalachian trends.

R. F. Baker told me during the day that the trend of the Tennessees in the Marathon uplift is N.E.-S.W. just the opposite of the Rocky Mts trend



This strike then is not at all in harmony with that of the Ancestral Rockies of Lee.

This is an important matter and needs looking into.

All in all I had a profitable day.

Saturday Feb 27 - 1926 Houston

At noon R. F. Baker and I got started in his car for Galveston on the Gulf shore. The distance by road is about 50 miles and in all this way the slope to sea-level is only 40 feet. The land is as level as a table and, when drained (ditches) is good farm land to within about 10 miles of the Gulf. Fifty farms are much in advertising. Towards Houston all the streams are cut down to sea level with standing water.

Galveston gets its water out of artesian dug wells about 8-10 miles N. of W. of the city.

Bader tells me that the Hurricanes blowing in from the Gulf pile the water 14 feet above ordinary sea-level. This is definitely proven since at the Sulphur Mine sea water came to the 14 foot elevation. This is an important matter to bear in mind regarding shore phenomena. Also that formerly the present shore is about six city blocks farther west than it was before the hurricane. It is again building out to sea.

The land goes very gradually into the sea, and the wind waves roll in very gently, probably more or less than 12 inches - so shallow is the shore out to sea. The sand is very fine, even grained, and blown from the strand where dry the winds blow it into bar dunes. These dunes grow higher toward the Rio Grande. Beneath the surface the sands are replete with from 15-30 species of small pelecypods and some gastropods. Cray are bored by gastropods. Sea urchins are practically absent. Chitinous worm tubes with shells glued all over them are common. See these samples of sand and worm tubes.

Yale Educator Urges \$1,000,000 Museum for Texas

**Dr. Charles Churchert Points
Out Need for Such Institu-
tion at University.**

In the preliminary steps which have been taken toward the establishment of a museum at the University of Texas, consideration has been given of the great service that it would render not only to the students of the university, but people generally of Texas. Men of science are especially interested in the accomplishment of the project. Dr. Charles Churchert, professor emeritus of paleontology at Yale university, who is conducting a special course of lectures at the University of Texas, is regarded as an authority on museums. He was formerly administrative officer of the Peabody museum of natural history at that school and he has direct personal knowledge of benefits which are to be obtained from such an institution. He has evidenced much interest in the movement to bring about the establishment of a museum at the University of Texas.

Museum Needed

"The people of this state need at the University of Texas a first-class museum to show the vast natural resources of the state," he said. "Not only its mineral and agricultural wealth, but as well to show the animals common to the region and the archaeology of the peoples who once lived in Texas. It should not be merely a place where these things are shown visitors, but above all to also be an educational center for the students at the university studying natural history. It should also be the place from which are loaned collections and books to the high schools of the state and even something of this same sort may be sent out to the public school. This last has been done by museums of some states. Its doors should be open to the public every day in the year, including Sunday afternoons.

Tells of Other Institutions

"The natural history museum of Harvard university has cost more than \$1,250,000, has an endowment of about \$900,000 and its floor space covers about two acres. It is primarily for research. The Peabody museum at Yale university, starting out with a gift of \$150,000, has now a new building costing over \$900,000 and a floor space of about 75,000 feet. It is also primarily a research museum, but is now co-operating with the schools of New Haven and of Connecticut and soon is to have another building wholly devoted to a children's museum.

Million-Dollar Museum Urged

"The University of Texas needs a natural history museum building costing about \$1,000,000 and so designed that additions can be built to it as time requires. A museum, like a library, constantly grows through new accessions and but little of its materials can be thrown away or is lost through the year of time. Let us hope that the people of the great state of Texas will see to it that such a building will be forthcoming. On the other hand, the history of other museums has demonstrated over and over again that the lovers of nature will do their share in building up the collection through specimens and collections, while various individuals of means will come forward with an endowment to stimulate research through the appointments of professorship and the building of special collections."

March 1-1926 Monday.

GEOLOGIST TO LECTURE

Professor Charles Schuchert of Yale university faculty and one of the leading geologists of the world, who is a visiting professor at the University of Texas during the winter term, will deliver a series of five illustrated lectures on the history of the earth, during the first week of March, Dr. E. H. Sellards, associate director of the bureau of economic geology, announced Wednesday.

In his lectures, Professor Schuchert will trace development of the earth through the peopling of the lands, the age of giant reptiles, to the dawning of the present scenery and life. The lectures will be delivered in room five of K hall at 7:30 o'clock on the nights of March 1, 3, 4, 5 and 8.

SPEAKS ON NIAGARA

Niagara Falls is receding up the river at the rate of five miles per year and soon newly weds in Chicago will have to pay less railroad fare to make the honeymoon trip, according to Prof. Charles Schuchert of the Yale university faculty, who delivered the first of five lectures on the history of the earth in K hall on the University of Texas campus Monday night.

Professor Schuchert told of the wearing away of the Niagara cliff to illustrate the general wearing of the earth's surface by water. His subject of the first lecture was "Sculpturing the Earth's Surface with Air and Water." Professor Schuchert will speak again tonight at 7:30 in the same building on the campus. His lectures are illustrated.

March 1, 1926

YALE EDUCATOR HEARD IN TALK

Dr. Charles Schuchert Traces Development of Geology.

"Nature works in rhythms and in circles, whether her immediate task be production of river or mountain," declared Dr. Charles Schuchert, visiting professor of geology at the University of Texas, in a lecture on "The Coming and Going of Seas and Mountains," declared Wednesday night on the university campus. Dr. Schuchert is professor emeritus of paleontology at Yale university.

"The rain is born of the ocean, and to the ocean it returns with the spoils of the land. It is now known that the oceans have spread periodically and more or less widely over the North American continent at least 20 times," Dr. Schuchert said.

He traced the development of sedimentary land waste brought down by rivers forming deltas and marine deposits into solid beds of rock. This is shown by the delta of the Mississippi river, which began to form about 38 miles north of Cairo, Ill., back in medieval times, according to Dr. Schuchert. Since then it has gradually built itself out into the gulf for 1100 miles, he said.

What had long been a mystery to geologists—the movement of the earth locally up and down—Dr. Schuchert explained was formerly thought due to the cooling of the earth and its consequent shrinking from time to time, is now explained by the lately discovered radioactivity of rocks.

The third lecture of this series will be given on Thursday evening, March 4, at 7:30 in K hall.

March 3

1926

HOW OLD IS MOTHER EARTH

Geologists Estimate It at
Five Million Years.

= 500,000,000

No more than five million years were required for formation of the geologic processes which are recorded in the rocks of the earth, Professor Charles Schuchert of Yale university said in estimating the age of the earth in the third of his series of lectures on history of the world at the university Thursday night.

The physicists, however, he said, are more liberal in their estimates and on the basis of the radioactivity of minerals would allow twice or more than twice that amount. Time estimates are made by the geologists, Professor Schuchert stated, in several different ways. One method is the amount and rate of accumulation of salts in the ocean. Another is the time required in the accumulation of thousands of feet of such rocks as limestones, shales and sandstones. Still other partial estimates are made from the retreat of waterfalls. The waterfalls, however, are temporary features and can serve only in estimating short periods of time. The wear of the mountains and the quantity of sediments carried from them afford partial estimates. To wear down a great range of mountains such as the Appalachians, he stated, requires probably not less than fifteen million years.

The next lecture of the series will be delivered tonight on the great reptiles of the medieval world. The lectures are given in K hall at 7:30 p. m., and are open to the public.

March 4
1926

Dr. Charles Schuchert Traces Rise of Dinosaur.

"Animated citadels of flesh with nothing to fear but themselves, two pounds of brains to 76,000 pounds of flesh, brute strength and low mentality." These, according to Professor Charles Schuchert, are among the characteristics of the great reptiles of the medieval world. The medieval time in the world's history, he stated in his lecture at the university Friday night, was pre-eminently the heyday of reptiles. During that era reptiles held possession of the earth; in the air were great dragons with expanse of wing of 25 feet; in the waters were fish-like reptiles of great size; while on the land the dinosaurs, "terrible reptiles," held sway.

The dinosaurs, according to Professor Schuchert, include the most extraordinary animals that the world has seen and the largest land animals that have lived. One of these, called *gigantosaurus*, "gigantic saurian," has a length of 80 feet, 36 feet of which is neck. Another, *brontosaurus*, "thundering

saurian," had a length of 65 feet, weighed about 37 tons and required a daily ration of probably 700 pounds. Among the vegetable feeders were some having no more than one pound of brain to 80,000 pounds of flesh, or "enough sense to eat when hungry."

Traces Reign of Dinosaur.

The disappearance of the dinosaurs from the earth coincides with the great mountain-making period which gave rise to our rocky mountain system. They occupied the whole of medieval time. "Their career," says Professor Schuchert, "was not brief and is comparable in majestic rise, slow culmination and dramatic fall to the great nations of antiquity." In the latter part of the reign of reptiles the mammals made their appearance, at first few in number and small in size, but representing an immense advance in brain capacity.

The next and final lecture of the series, on "The History of the World," will be given in K hall at 7:30 p. m., Monday, March 8. Professor Schuchert's subject will be "The Dawning of Present Scenery and Life." The lecture will be open to the general public.

Dr. C. Schuchert
1926

DAWN OF THE RECENT

Prof. Charles Schuchert Continues
Lectures on History of Earth.

"The Dawn of the Recent" was traced by Prof. Charles Schuchert in the last lecture on the history of the earth given at the University of Texas Monday night.

The great reptiles of the medieval world disappeared with the changed conditions accompanying the making of the Rocky mountains in North America. Upon this disappearance of the reptiles the mammals, at first small and few in number, took possession of the land. The most notable characteristic of the mammals, according to Professor Schuchert, was increased brain power and increased care of the young. With the disappearance of the great reptiles the spread and increase of mammals over the earth was rapid.

The dawn of civilization is placed by Schuchert approximately 18,000 years BC in Asia Minor, Arabia and Persia. The city of Susa, Persia, apparently goes back to 1600 BC.

"In the pliocene, man in England already knew how to kindle fire and the Neanderthal race buried their dead with their implements, paints and ornaments, showing the dawn of some religious feeling," Professor Schuchert said. "Man's mentality now dominates the organic world and bids the force of nature to his work. However, his further progress is dependent upon himself, depending upon whether he will learn to control himself for the benefit of human society. Man's first duty is service to mankind," he said in closing.

March 8-1926

Had the largest audience, about 400. Among them President H. H. Hays and wife, Prof. Bellard and wife, Prof. Pearce, Prof. Cunningham and wife, Doris Stupper (whose wife did not attend one of them). About $\frac{1}{4}$ of audience were students, rest citizens. All were very appreciative.

Mr. Greuter, mechanic in the University ran the lantern, and he did well.

The lectures speak well for the popularity of the book when published.

March 12 - 1926. Friday

On Wednesday evening I gave the last lecture and yesterday at 2 P.M. we had the final exam. I began with a class of at least ⁴⁰ ~~50~~ of whom most were the visitors. Then we settled down to 30 men and finally 12 were taking the work in course towards a degree. Of these 9 of them are sons of B or mas. One had C and another D. About 6 of the men have promise of making oil geologists since none have any other ambition.

At noon I handed in my merits and report, and so the contract is closed for which I am to get \$1800.

A news note which comes to us from a professor of Geology down at the state University states that the earth is 1,500,000,000 years old; and report in the papers a few weeks ago quoted a Yale professor as being able to prove that the earth is 371,000,000 years old. We don't believe either report. The earth is today exactly 9,925 years, one month and 11 days old; but if the Bible didn't tell us that, we wouldn't believe it. In fact, when we observe how some East Texans have abused the earth by letting its virgin soil wash away and the precious fields get all gullied-up, we doubt whether it was here when Washington was whipping the British. Any man's earth in the whole universe would have been a blowed-up sucker ages and aeons ago had it been subjected to the abuses we East Texans have perpetrated upon ours—We'd better get to terracing and draining, or our Earth will be a blowed-up sucker, and we will be too.

March 13-1926 Saturday, Austin.

This afternoon Sellards took me to see the upper part of Edwards limestone. First to a quarry in west Austin, then to Deep Eddy Bathing Pool (a sort of summer resort), then by the Big Dam on the Colorado River, and finally to exposures along the river. Nearly all that I got are *Monopleura's* and true heart urchins.

The Edwards has one bed about 30 inches thick composed of *Miliolina* forams.

Beneath the few thick and good beds of quarry limestones are thinner beds and at the base of these one bed extensively exposed was semi-cracked long where. Therefore this layer was exposed to the air. The *Miliolina* bed also pebbles of a yellowish nature, more or less angular and up to 4 inches long and an inch thick; these are of an intraformational nature, showing that these waters were very shallow.


March 14-1926. Sunday. Austin

Packed my fossils and arranged lantern slides for the 3 lectures at the Agricultural and Mechanical College.

Late afternoon with Sellards called on President and Mrs. Splan.

March 16 1926 Tuesday. Austin.

Got up at 6 A.M. and with Professor Whitney and Mr. King was off in the Univ. car at 7 A.M. to be gone all day to see the Glen Rose of southern Blanco and north-central Comal counties.

Crossed the Colorado River and then S.W. to Cedar Valley and Dripping Spring (Hays Co.?). Then we passed Lone Mountain and the Twin Sisters Mt. These are typical Buttes. Then we crossed the Blanco River and on the south bank went into a German farmer's land to see a reef of radiolites (Schizophoria lit.). All are carbonate of lime pseudomorphs; elongate tent shells up to 8 inches long and up to $2\frac{1}{2}$ inches in diameter. Something like this:  The walls are very thick and fluted and the cone filled beneath the body chamber with concave floors. The layer is 2 to 3 feet thick filled with the shells but hardly thick enough to call it a reef. Took no rock with them since it meant more rock than I could carry. ^{base of the Glen Rose on top of Twin Sisters} The horizon is at the very top.

On the slope down to Blanco River, near the base of the Glen Rose collected some flattened but good Poroceras.

Leaving the German farmer's home we began collecting at about 140 feet above the base of the Glen Rose in limy clay beds, about 2 miles S. of the

river. First in a horizon with Salenia and heart
urchins. Then farther on in lower beds a bivalve
zone ^{here etc. which is another} heart urchins ^{stage.} If we had the time
many of these echini could have been collected.

Then turned north and mainly east to the
north side of the Guadalupe River where there is a
high cliff of the Lower Glen Rose. Here occur thin
laminations among shale - lens & zones and one of these
beds 5 or more feet thick weathering a bright red is
filled with Schthyrodontites. Took a few fragments
of them with Monopleura and a very large deep
shelled gastropod.

About 3 miles west of Hancock, Comal County
in a blue clay bed collected a very large species
of Orbitulina - the hat shaped form as yet undecorated.

At 3 P.M. it began to rain and we had to
quit collecting. The roads for many miles were very
slippery, and the great majority of them between Driftwood
Springs and San Marcos very poor. Then the engine of
the car leaked gas all day and most of us got
headache.

PROFESSOR SCHUCHERT WILL LECTURE HERE

Prof. Charles E. Schuchert, curator of the Peabody Museum at Yale University, and professor emeritus of College over March 18, 19, 20, and 21, paleontology, will be here at A. and M. and will give several lectures on geology and related topics.

Prof. Schuchert has been carrying on certain research studies in the paleogeography of Texas, and is completing a course of lectures at the State University at Austin. The people of Texas are to be congratulated on the privilege of interesting and entertaining a man of Prof. Schuchert's attainments, and both the University and A. and M. College are fortunate to secure a place on his busy program.

Details of Prof. Schuchert's lectures will be announced later, but the following topics have been suggested: Animals, Historical Geology and Research in Science. In addition, to the above, it is hoped that Prof. Schuchert will be able to address all the engineering students on such a topic as "Geology and Engineering" and to meet one or two classes in Geology. Prof. Schuchert has numerous slides to use in connection with his addresses, and all the Campus and Bryan people are cordially invited to attend these lectures.

JAMES H. HANCE, head,
Geology Department

College Station, Texas.

Dark days and considerable rain

Left Austin Thursday morning at 11¹⁰ on the International Great Northern R.R. for Valley Junction where I stayed to go east to College Station which is 5 miles east of Bryan a county seat. Got to College at 3:30 P.M. Here Professor Hance ^{and Dean Pargen} met me and took me to the Hotel Argyleland. Was interviewed by the Dean of the College and Science at 4 P.M. called on the President Mr. Walton. At 8 P.M. gave the first of three lectures, but the lantern was so faint that much of my lecture was ineffectual.

Friday morning spoke for a half hour to a group of students, and then visited and interviewed the rest of the day. At 8 P.M. gave the second lecture and once the lantern worked well. Prof. Ball (biology) is a collector of Congress is interested and more especially of leaves and in which he gets some help from Perry. Many of his specimens are fine. Then called on Prof. Francis (Vertebrate) who has a remarkably good collection of Mammals and Congress mammals from around about this part of Texas. Proboscideans, bison, camels and horses abundant. One fine horse skull, jaw and one leg from a well.

Saturday morning at 10 gave the first lecture to a jammed audience in the large lecture hall of the physics building. Then visited around all day. The A. and M. College has 30,000 acres and 2400 students under Military discipline - a good method of training young men.

Sunday morning dawn with heavy showers and
thunder and lightning. Same rain Saturday morning.
Listened to Prof. White talk on Calvin and Luther respect
for him as a reformer. Then attended church and saw about
1000 students march to church in military fashion. Had
dinner at Stances home.

Monday (March 22-1926) visited with Stances and
at 12.10 I was off for Fort Worth where I arrived at 7.30.
Put up at - address listed.

President Walton
University College Professor Farley (Historian).
Dean of Mech. Engineering Prof. Bolton
Prof. White (Economics)
Prof. O. M. Ball (Biology) has printed plants and animals.
Prof. M. Francis (Veterinary Medicine) has
printed mammals.

The American people have then nearest relations
with Western Africa, the Near East, and Southern India. This
is different from all my earlier views - northern Mediterranean
affinities. See the little maps on which I noted
some of these points; will place them later on my paleo-
geographic maps.

Fort Worth, March 23-1936
Tuesday.

Had a cab take me four miles S.E. to Texas Christian University, and first met Eagle Hartt and then Professor Dr. W. D. Minten. Spent the morning talking over the Bretonian formation as a representative one. At first I could not see it or two after a while it became clearer that the east Texas Cretaceous was a shallow sea spreading north during Trinity time and remaining a shallow sea during Fredericksburg time. See the ^{as a result} the dinosaur tracks found at Glen Rose Texas. Then towards later Washita time a subsidin area began along the Red River region that spread out into the Gulf of Mexico to the west. The land was in the ^{final} compressive stage of the sea. It is thought that the older strata of the ^{as a result} are to the south and west and the younger to the north and east. The latest Washita = Buda is Pragian in age while the Bretonian is Cenomanian. These are the first beds of the lower Bretonian are upper ^(Turonian) Turonian. There is a break (supposed to be a sharp descent and a lower Bretonian. This first bed is found in the Eagle Ford. See the paper Hartt (ms) gave me and which he is to read this week at the A. C. P. U.

In the afternoon Minten and Hartt took me about

Dallas, Texas, Wednesday March 24-1926

Got to the Baker Hotel, Dallas, at 10 P.M. and located on the 13th floor. Took things easy. In the evening the geologists began to arrive.

Dallas March 25-26-27-1926

This morning the geologists are filling in at a very great rate and before noon the hotel is full. The meetings start in fairly promptly and all goes smoothly. Met dozens and dozens of friends, but unfortunately I cannot remember the many people, and they all want to be recognized as remembered.

Friday afternoon there was no session. Had a long talk with Professor Palmer of California. Finally Mr. Leight wanted to know if I would consider 3-4 weeks consultation regarding the Miss. Penn. and Permian in Kansas, Oklahoma, and Texas. He thought his company the Leach Co. would pay me \$5000 for my help. This work is to be done either next fall or in the summer of 1927. Friday evening Plummer gave a dinner to about 20 people with a view of starting a Paleontological Society in the A. A. P. G. We all got behind the plan with a view towards a publication.

Saturday morning listened to papers. In the afternoon there was a section on Micropaleontology with Moore of Kansas as Chairman. Finally Professor Moore took the chair. Another paleontologic society is now at hand. All the papers were read by 1 P. M. and every one was agreed that it was the most successful meeting ever held by the society. This was the eleventh annual meeting.

In the morning there was election of officers. Sumner of Houston got 184 votes and my friend McClogh got 193 (elected) for President. For Vice President Berde got 160 and 217 (elected). For Secretary-Treasurer Fritz Gwin got 218 (elected) and Reeder 155. Moore did not run for reelection and so John L. Rick was elected as editor.

Dallas, March 28-1926

The auto of the Bureau of Economic Geology Univ. of Texas, with Dr. Lonsdale as driver, was ready to start at 7.30 for Austin. We have 200 miles to go and the day is dark and cool. Soon after starting it rained enough to make the roads slippery, and we saw three cars in the ditches of the road. From Dallas we go south to Midlothian, Grand Prairie, Itasca, West to Daco. Here we had lunch at 12.15 and by 1 P.M. we are off again to Temple and at 3.15 we are at the extensive road metal quarry of the Santa Fe R.R. about $1\frac{1}{2}$ miles N.W. of Baylor College (for girls) at Belton. We came here to see the redistid layer at the base of the quarry. It is not a reef, but a wave-crested irregular mound of a redistid like Schizothaera lita. I had no hammer and time was short so could make no good collection. I have enough to show the nature of the fossil. A closely associated layer rather shaly had many schizothids. The Caprina-like shells come from a zone about 10 feet higher. Truly what of this quarry has more a long line redistids.

At 5 P.M. we are in San Antonio, Ciudad Real, and Austin where I arrived at 8 P.M.

Austin, March 29-1926

Getting ready to go to West Texas. Dandel day.

Austin March 30, 1926. Tuesday.

It thundered and rained heavily about midnight, and this morning the wind is cold. The morning papers have stories throughout the state with $7\frac{1}{2}$ inches of snow at Amarillo. Bellards telegraphed Beede at San Angelo about roads, and the reply was that they are bad. Then concluded that we could not go for at least two days. Telegraphed Baker at Houston and Kestle at Alpine.

In the evening listened to Keith's second lecture on 'Topography in relation to earth movements'. He has a bad cold, and so I understood but little. Keith also got his cold at Dallas, just I did, but the Doctor here at Austin has about driven it out of me.

Austin, March 31-1926. Wednesday
Another fine and cool day.

In the afternoon saw Bellards, and he said he would call for me at 9.30 tomorrow morning to start for the Marathon country.

Austin, April 1-1926. Thursday

The day is fine and at 10.30 A.M. we are off for West Texas in the car of the Bureau of Economic Geology operated by Mr. E. H. Sellards. We go directly west from Austin to Drifting Springs, Johnson City to Fredericksburg. Here we arrived at 1 P.M. having come 83 miles. Had lunch and at 1.30 we turn north and a little west and soon get into the basal Comanchean that has much of red beds. Then we get down into the basin of Central Mineral Area and former Cambrian sandstones and shales and then a long reach of steeply upturned Paleozoic schist and red granite. It is 34 miles to Mason ^(left town at 3 P.M.) which is on these old rocks and ^{we} soon rise upon a narrow outlier of the Comanchean, and then over thin bedded Cambrian-Ordovician and finally Pennsylvanian to Brady which is 27 miles N. of Mason. From Brady ^{at 4 P.M.} we go almost directly west and soon get in the Comanchean here a series of variegated clays with calcareous shales, a tree. Then ^{from Eden} N.W. into some Cretaceous and finally Permian on which San Angelo is built. It is about 80 miles from Brady to San Angelo, and about 230 miles from Austin. Put up at San Angelo Hotel. Got here at 6.15 P.M.

About five miles N. of Fredericksburg we had our first view across the basin of the Central Mineral Area.

It is a wide shallow basin with rather of granite
dike and fringed on south and west by a gneiss
of Cambrian dikes after hundred feet high. The
floor of the basin is packed with oolite cut by red
crystallic granite and upon which are
local occurrences of Upper Cambrian, Cambro-
Ordovician ^{and through the center} ~~to the~~ Cambrian. In places the
Paleozoics stand steeply so as a rule they lie
in undulations but dipping to the head of the
cellars. The doming of the Mineral Belt took place
after the Bend and seemingly went on until some
time into the Olden Strain. The Pre-Cambrian
rocks Pope (Tolst) makes, etc. and says that some oolites only deep wells
have revealed Radiolaria. Look into the matter
to see if they are actually Radiolaria. Saw some
granites bedded-like cutting ~~at~~ at an angle of about
70-degrees.

The Cambrian dips against the Mineral
Belt and finally around it.

There is a gneiss around the north side
of the Mineral Belt.

San Angelo - Alpine, April 2-1926

Left San Angelo at 7.30 A.M. and passed over Permian to a Comanchean mesa that begins with sands and then the heavy Fredericksburg. The thickness is small. Farther west is more Permian.

Passed through Herwood - Barstow on the Great R. R. to Big Lake. The Big Lake oil field is about 14 miles farther west. This field was discovered by a wild cat, and in 1920 there were down about 20 ^{across} wells; now there are 90. The field is about 3 square miles and is now yielding 30,000 barrels daily, being at present the greater producing field in Texas. The wells are down between 2900 and 3100 feet. Outcrop is 300 of Comanchian, 300 of Triassic and the rest is red beds ^{and sand system} Permian with the oil in the sand and red beds. One ^{are} well is down 6000 feet and is believed to be still in the Permian; that are Hued Shales below the oil zone. Sellards visited with Graves, ^{and myself} for 2 days, had lunch here. In this region the general dip of Permian is to the N.W. The oil dome has a rise of about 100 feet with a gentle western slope and a steeper eastern one. Thrusting from the E. See Sellards paper soon to be published in A.G.P.G. Bulletin.

Crossed Pecos River at 1.35 P.M. The river is incised about 20 feet. Before about 30 miles to go to Fort Stockton. One ~~there~~ are many outcrops of Comanchean

and Holom deposits.

= mesa. No farming, no ranching and sage brush is
now common. The land scape is monotonous.

Collected for an hour either in the top of the Fredericks
by a basal beds of basalt at Seven Mile Mesa east
of Fort Stockton! See the fossils. at 4.30 P.M.

Soon after leaving Fort Stockton we begin to
see the Madera Cr., domed up Permian strata from
which has been worn the Comanche. ^{collected some} It is thought to
have an igneous mass below but no one has seen it,
and all the strata are in ^{hooks} a jumble. The Cr. is up-
turned and then is a series of flat faults in enche-
lon all around.

At Fort Stockton there is a great spring - Coman-
che spring that yields daily 60,000,000 gallons of water
and irrigates some 20,000 acres of land.

We are following the River to Alpine, at
44 miles W. of Fort Stockton and west of Honey we
collect a few more Comanche fossils, and of the
same horizon as at Seven mile Mesa.

Bill McAlpine at 10 P.M. and Ray Baker have
arrived. Deete, Baldwin, Blanchard and Hillis
are also here.

Talked long about the Permian salt and
Seymour. ^{all just the fossil explanation is old} I got clearer notions about it.

Alpine Saturday April 3-1926

Started out (7 geologists) at 8.30 A.M. for Marathon (30 miles E.) and then to a place 3 miles south of Saptank which is 35.6 miles N.E. of Marathon. Arrived at 10.10 and began collecting in the zone of the upturned Lower Saptank. The section as measured here by Blanchard and Baldwin for the Maclure Cr. is as follows.

Total thickness measured 608 feet but is considerably thicker.

Comanchean Cretaceous above. Saptank in an anticline.

The section begins at the base of

Great Unconformity

Li. and ss. ^{intraformational} congl. with pieces of li. and chert and some sand.

Thickness variable 10' - 300'. See April 6 for more detail.

This is not a local conglomerate.

Dark gray shale 120' with a lens 3" to 6" of lamatite

(3) emarginatus. Productus zone (see the 3 pieces).

Dark gray shale with im. emarginatus, 90 feet.

Dark brown and dark gray Fusulina li. 15' Lat.

Hard calcareous sardonic ledge with fossils. ^{about 10 feet thick} See the collection. Besides these ostracods are Chaetula millipora

(2) Springona multiaurata, large Bellerophon sp. ex.

Sandstones 6' 3"

Greenish shales 20' Dark gray li 1' (not exposed 25')

Li. 1', Shale 4'

Fusulina li and sh. 6' Sandstone 1' Gray shale 9'

(1) { Diffusum fossil zone = 16 feet thick.

Then li (1') Shale (3') ss (1') and 2M sandstone 4'

Many small *Trilobites* weather out of the lower beds ① and lie on farm ground. I had no time to collect it. Korte has a lot of it and if necessary get him to loan me a collection.

The fossils show clearly that these Lower Saptank shales are of the age of the Pennsylvanian and not of the earlier time either, and certainly not at all of the Bend-Morrow-Draperian time. As I see no *Chonetes* *neobolites* but rather the *C. cornuiformis* I am concluding if the time may be said Canyon. It is certainly as late ^{or later than} than the *Trilobites*. The folding of these *Trilobites* - *Simple* - *Stemmed* shales therefore may fall in Middle Pennsylvanian time. In later work.

of the relation is to the Upper Saptank. Blanchard says cannot be determined at this place since there is none here, nor any of the Permian later days ^{to the conclusion that the relationship must be} mean series. They are an *arguing* relation to the Comanchian basal sands and then the time series, but he ^{probably} does not know (Prof. Edwards)

Then visited south of Wolfcamp where ^{This is my locality collected from the fossils of the Permian} all collected and ^{done in} the Wolfcamp but in the Upper Saptank in blue shales. It is not far from Korte said he had at least 50 specimens of *Communita*.

It hailed and rained at 4 P. M. and we concluded to go back to Alpine.

On road we saw a small one to Saptank one turns to the ^{to the same locality} at 116 miles on of Marathon; there is a wind mill to S.

Alpine, Sunday April 4, 1906

Traveled east to 4 miles west of Oranthen and then ^{tuned in} on trails north to the first Permian escarpment to collect Leonard fossils. This place is about 4 miles S.W. of Iron Mt. We collected all the morning 500 feet above the base of the Leonard (there is no stone here) in a fine crystalline limestone. I called this loc (50) and marked it in the Altuda Quadrangle.

In climbing up to this limestone ^{dike}, we saw many zones of limestone ^{and *Oronotia* ^{with} *Oronotia* ^{with} *Oronotia*} conglomerate. As a rule the pebbles are well rounded of quartz and chert and usually less than 1/2 inch across, but there are also angular pieces of limestone of all sizes to blocks up to about 1/2 foot long. These must have fallen from cliffs ^{into the canyon} unless by ice transportation for which there is no evidence. There is also much fine sand in these conglomerates.

Then continued farther N. up the side of a gulch where another creek comes in from the W. and then reached about half mile to the place marked locality (7) on the Altuda Quadrangle. From here found a limestone full of ammonites and we collected many. These beds go from ^{760 to 860 feet} above the base of the Leonard.

These ammonites occur in several zones through about 100 feet of strata and on the top of the hill we

Thru. about 100 feet higher than
the lowest layer.

found another great abundance of Ediacara
ammonites with hollow septate chambers. Collected
a lot of them and one is a very fine large one.
Also, for a Rhinodictyon ^{or Alveolites} this highly bed &
marked (57a).

There is no deer in this place. Loc (17) ^{now}
anywhere to the S. the Loess and ^{here} rests on the "as blue" ^(= Long Point)
series and so there is no Saptank nor Wolfcamp
here. The road goes with the S.P.R.R. and
never crosses the Tessey. Therefore the Ediacara
thru out S. but is still present in the Long Point
Loess in time of the Silliman, and none of these
great formations are present in the Shafter Region.
Ground into the Permian, the Western Alcon Mts,
nearly 12,000 feet to 10,000, then down to less than 6000
feet in the Shafter Region (Look up Ediacara for Trilobites).

Gravel of Ediacara with fossils occurs N. of the S.P.
R.R. at 11 miles east of Alfons. We will collect
here at another time. Did not find a single fossil.

Farther west a few miles on the S. side of the S.P.R.R.
the Carboniferous dips to the W.

In the Carboniferous Alfons Texas there is a well down
to 6000 and a drill of 600 feet into the Packman shale.

(It is not known that Lower Gaptank is present here)

In the Deliberator the Tesnus is also present and folded with the same general strike (S.W.) as in the Eden Mts. Porus also got Silurian here.

The Shafter Rg. in Utah gives a thickness of 1430 feet = Pilestr series. Mont Blanchard says that deposition is continuous here. Supposed Pennsylvanian goes unbroken into the Permian. Only lithologic proof for Pennsylvanian; basal black shales with thin beds of quartzite that look like Tesnus. No folding here, only domal uplift; here in the west the folding is too great to have died out.

Eden has seen but one crinoid columnar in the Simple li. No other fossils other than sponge spicules are known in the Simple.

Stagmion is now regarded as Tesnus. Baker at first ^{originally interpreted the signature} and therefore this formation is to be disregarded.

Blanchard says Lower lies below the Permian li. that has "Chert below", mostly once Perm. and the Permian. Eden = Dred. Capitan = Vidua, and the Light beds = William and Terry

To this locality one goes ^{road} on from Marathon to
Lupton and turns in at the small ranch house
with a wind-mill that is 16.1 miles out from
Marathon. One goes up to a rise, once that
goes up the rise, and then N.E. for less than 1/2 mile
to to a small mating sleeping place that is the first one
west of a tank.

This is over 500 miles ^{here} _^ or basal ^{comp} _^ ^{mate}
at all.

Alpine, Tuesday April 7 - 1926

Started out at 8.15 A.M. for the ammonite loc. in the upper Saptank 5 miles S.E. of Wolfcamp. The ~~ammonite loc.~~ is 60 feet below the second thick limestone zone or about 330 feet beneath the top of the upper Saptank, but at this place the upper 200 feet are thought not to be present at Wolfcamp. The section is roughly as follows.

Apparently eroded away at Wolfcamp

Upper thick li.
50 feet thick

Upper li and shales
about 200'

Lower thick li 20'

(Middle zone)
Ammonite zone 60 feet
below the second li.
This ammonite loc. is
at base of hill on S.W.
Quadrangle marked 4752

Upper li and shales 130'
shales. Have a
few fossils, but here
have not seen

Ammonite zone 200 feet thick
150 feet thick

from direction

Then started in ~~at~~ ^{on} road. When out 23.4 miles the road goes up a hill that has tilted ^(= Lower Saptank) ~~Tenn.~~ ^{trails for 1500} Here I saw the same gastropod trail that I collected four miles W. of ~~the~~ ^{on the S.P.R.R.} The Tennes here strikes S. 60° E. and dips 40° S.W. ^{unconformably} Cragging the ~~the~~ ^{the} limestone series that has Lower Saptank fossils.

The locality 1 Saturday is 2 miles to E.
or 3 miles S. of Saptahk

See the small ~~light~~ brown things collected for identification. This ~~light~~ brown *Baptanulites* S. 65W and dips 100° S.E. The fauna is the regular Pennsylvanian one collected last Saturday.

The road then goes ^{6 1/2 miles} farther north over
folded Tennes. At 24.4 ^{miles} from Marathon are again
green yellowish con-
glomerate limestone and shales of the Lower Gaptank
formation, stand almost vertical. They strike S. 65° W
See the fossils; the Chaetetes in a sort of reef occur
about 200 and lower than the fauna collected.

These rocks are certainly by limestone float that have nothing to do with the vertical Lower Gaptank. As I got Chonite, most ^{from the vertical beds} ~~from the vertical beds~~ ^{these strata are} ~~the lower ones of the Gaptank series.~~

Then the Tennessean was folded before the reptilian fauna of the same sea came in. Then the Pennsylvanian was folded and eroded before the Upper Saxonian sea came in. (This view was later on completely changed)

Finding collected at ...
... Set mostly Fusulina
and Schizophoria. Near all of the Middle part here
is a coarse conglomerate with sandstone, and
further N.E. appears to consist of ^{The formation known as for fossils Conduens} the Oyster is very large
with all kinds of unbounded to well rounded pebbles.

Grant Blanchard says that Hadden did not get the ammonites at Wolfcamp in the Wolfcamp formation but in the Upper Saptank. The error was due to Hadden thinking there was an erosion hole in the Saptank on a day in which the Wolfcamp was deposited. This is an error. They occur distinctly below the basal conglomerate of the Wolfcamp. Some days later I was able to see clearly that Hadden was mistaken, and all of his 12 species of ammonites are therefore *in situ*.

This whole matter King thinks is an error and that Hadden is about correct (Dec. 1926).

The tank at Saptank is 20.6 mil from Inman.

When I got back to Austin and looked at the collections at
the Museum I saw that Hadden's collections, come from
1906 to 1908. H. and H. H. H. of the Fort. Hadden
got many of them and among them are some n. sp.
Most of the material is now in a box labeled by Zorke
but apparently Beede struck out many of the ones.
Beede it seems to me magnifies small values.
Even though there are n. sp. all are around Cicer
Kind. The fauna is unmistakably Pennsylvanian.

Alpine, April 6-1926 Tuesday

Started at 8.10 for Eastank (30 miles to Marathon and then 25.6 to the tank). I tried to collect Upper Gaptank all the morning ^{thirteen miles to the west} and got about 6 specimens. Failed to find Hadden's good localities. See opposite page.

DeLands, Baker and Blanchard started E. to make out the structural relations between the Upper Gaptank and the Lower Gaptank. The fossils collected ^{together} show the normal Lower Gaptank fauna of about

congr. time. I had also seen Lower Gaptank

to the east ^{and south of where they worked but} and had found. After lunch we all went up it again ^{to the east} and came to the conclusion

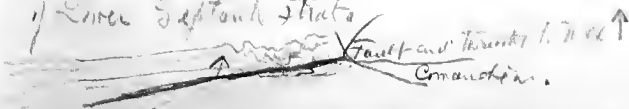
that there is no break between the Lower and Upper Gaptank. As we walked farther east to where

the Paleozoic strata go beneath the ^{alike are nearly vertical} and the blocks jumped some ^{and thrust} on that of us.

The blocks stand nearly at right angles ^{to me another} ^{normal} ^{faulting}

is therefore disturbed and ^{in the gully between the upper and lower Gaptank} ^{to me} ^{normal} ^{faulting} ^{is therefore} ^{disturbed} ^{and} ^{broken} ^{into} ^a ^{jumble}. ^{To me} ^{there} ^{appeared} ^{to be} ^a ^{fault} ^{present} ^{with} ^{the} ^{eastern} ^{end} ⁱⁿ ^{weathered} ^(to the west) ^{conditions}. This is part

seen a little ways headed by a great yellow patch of Lower Gaptank strata


Fault and thrust to the east
Continuation.

Then examined the Lower Gaptank ^{near that} seen on
Saturday. Before getting to the section one looked at
a conglomerate mass that may be basal to the
Lower Gaptank. Pebbles mostly of li., and in all
sign of to a foot long, rounded to subangular. These
li. reminded me of the Ordovician. Some Chro-
colite in angular pieces also present. One pebble
had four points, a small Lingulella and pieces
of trilobites, reminding me of the Cambrian or
Carboniferous.

Then looked at the great conglomerate in the
Lower Gaptank thought by Blanchard to be "basal"
Gaptank. Here the blocks are all large many two
^{or more} feet long and nearly all of crinoidal limestone ^{of the Pennsylv.} there
are also thin pebbles, and as pebbles got two
ends. According to this conglomerate is a kind
of intraformation of conglomerate since all the boulders
are of Lower Gaptank time. See the fossils and
one small boulder. This conglomerate must have
formed at the base of a cliff, and in thickness
^{according to Blanchard} varying from 10 to 300 feet. The Lower Gaptank -
this "unconformity" seen today has no basal
conglomerate at all.

We are all now satisfied that the great intrusion
of the Glen Opts took place after Tesnus.
Simple time, but the age of the Tesnus is not yet
known. Then after a time of erosion the area
was invaded by the Pennsylvanian sea, about
Cangin time and continued unbroken throughout
Baptist time which means to show Cicer.
time. Both the Lower and Upper Baptists are
folded alike, though the latter appears to be more
folded. What the relation of the original Wolf-
camp is is not yet clear farther than that it
appears to be conformable though somewhat of a
marked divisional unconformity. Therefore the
second fold may be post Upper Baptist and
it may be post Permian (but again the age of Permian)

It may be that there is a marked break between
the Baptist and the Permian. In some places
there is Wolfcamp and in others there is Permian
in Leonard comes to rest on the Baptist. To-
morrow we will learn more about the second
time of folding.

[Later we concluded that Tesnus-Simple is prob-
ably = Upper Lower Baptist, and that all were folded together
at the close of the Permian = Upper Baptist = Cicer time.]

Alpine, April 7 - 1926 *Wednesday*.

Spent the day 3-4 miles W. of Marathon to collect fossils only of the "Tesnus", and all that we saw showed that this Tesnus = Gaptank and in all probability the whole of the Gaptank.

First collected along the Alpine-Marathon road about $3\frac{1}{2}$ miles W. of Marathon. The strata are well exposed in the road ditch in a horizontal ^(of a syncline) attitude, and composed mainly of green shales with ferruginous thin beds of limestone having the fossils. Got a few more on the ^{lower} hill slope above. It is the Gaptank fauna and prob. *Up. Gapt.*

Then crossed country to the S. P. R. R. cut at mile post 580. Here the strata are vertical, shales, conglomerate (about the bed of small rounded rocks) and thin sandstones. Got a few fossils ^{intercut, as} *Forispa acuminata* and *F. nodifera* of *lindleyi*.

On the south dump of this 580 mile cut there is a limestone block with it. Blanchard collected from some more fossils. Lindley is said to have many more. This loose block came out of the railway cut.

Then went to the hill about $\frac{1}{8}$ mile farther S.W. from mile post 580 to see the unconformity discovered by me two years ago. After much work by all we concluded that this angular unconformity is due to ^{compaction and twisting} *compaction and twisting* producing an apparent unconformity. In the vertical strata beneath the uncon-

permits get ^{myraredly} Trusulina and T. erectella. In the cri-
nodal limestone above ^{the apparent unconformity} Trusulina and more common.
I have no doubts that the gravel out of the loose block
in the railway dump is from the same li. zone.

Strike of anticline S. 50 W. from Stajis
Ranch. Strike of lower vertical strata beneath
the ^{apparent} Permian conglomerate, is S. 40 W. The upper flat
lying limestone and sandstone dip gently to N.
but at east end of hills they stand vertical; on
W side of hills they descend far more gently to
the W.

Then tried to find localities farther south
to the north of Fort Peña, but saw only Orni-
culites and Ordovician cherts, congl (also in-
trapsformational) and limestone. Saw here El-
liptopaptus suggesting Triassic.

Then came out ^{again} at huerfano and entered
W. to Diego Ranch to the N. of the road and
here again we saw Furcata in cylindroids,
Rhipidomella pectus, Composita subtilita and
fragments of several Proclitellus species.

Then looked up the Sierrita beneath the Co-
ronation 11 miles E. of Alpine but did not see
a single Sierrita form.

Every place seen today in the so-called
Tesnus turns out to be ^{at least} Lower Saptank with
decided suggestions of the Upper Saptank. It is still
several miles W. to the great mass of the
Permian and plenty of room ^{not only} for the whole of the
Saptank, but as well for the Tesnus-Sample if it is
another series which I very much doubt.
All the forms reported by Baker in Heddies
Report of the Glen are ^{at the least} one Lower Saptank
species. As there is no break between Lower
and Upper Saptank and as both are equally
folded it follows that the time of Int. making
is after Saptank time.

To morrow we will collect Wolfcamp
fossils and study the relations of the Saptank
to the Wolfcamp. The great break between
the Pennsylvanian and the Permian comes
in above the Upper Saptank, but what
is Wolfcamp?

Lately it dawned on me that the fossils collected only of the lower 20 feet of the Wolfcamp had but few of the species seen farther E. Those lower fossils are all siliceous in a soft moist weathering li.

All of the other Wolfcamp fossils weather out of softer li. and may be of a higher zone. Is there a fault between the W. place of the lowest Wolfcamp, and the place of the fine and better fossils that have Phylloporina etc.²

Blanchard has it five feet —————→

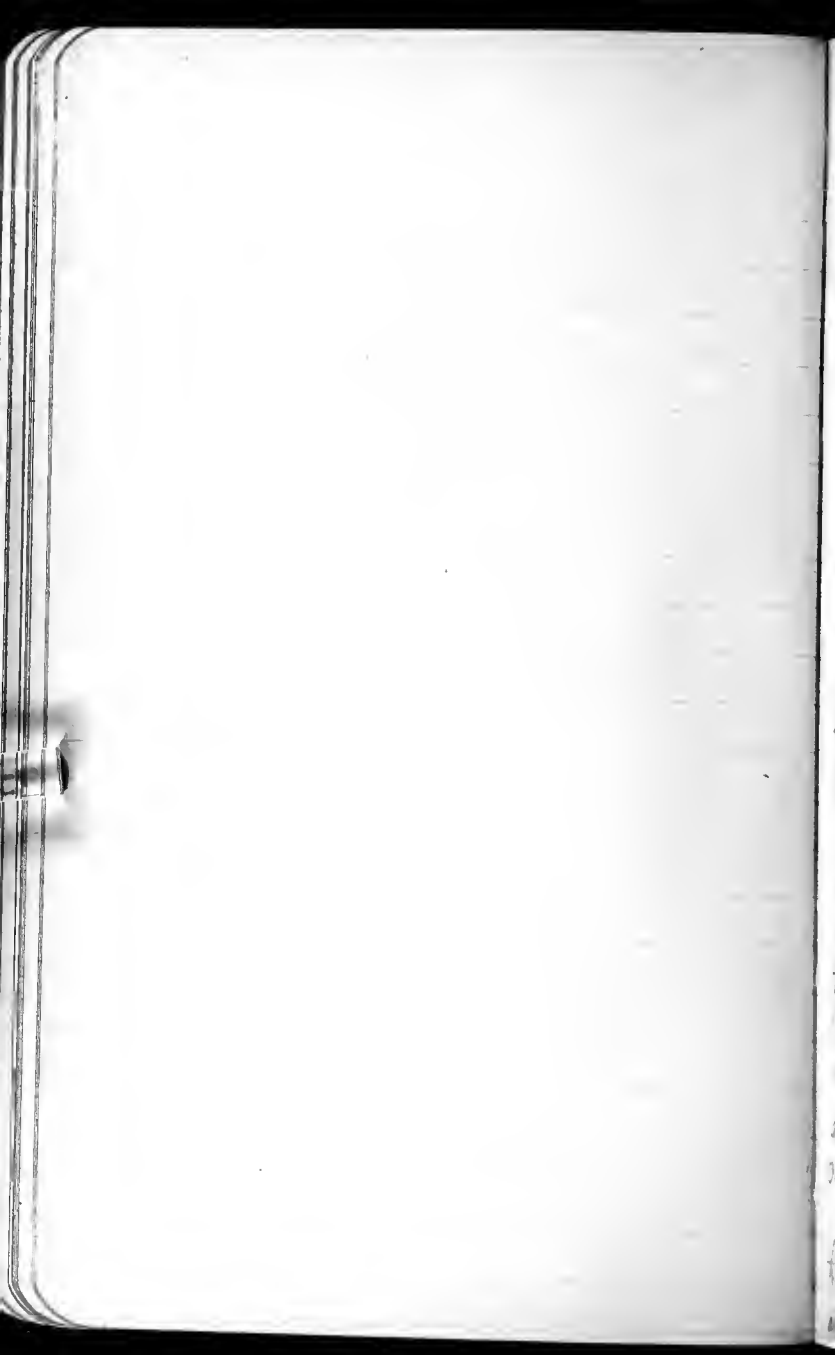
See 1926.

Apparently my 6-8' li. zone is a new one. It is not the base of the Wolfcamp as I had interpreted it; it goes on lower for 167 feet and includes the hidden ammonite zone. The top of the Wolfcamp is 20' of li, beneath which are dominantly shales.

Alpine April 8-1936 Thursday

Motored to Wolfcamp northeast of Marathon. Here we collected all morning in the zone 20 feet of the Wolfcamp, probably half a mile north of the type locality. Left the car a little to the W. of the old deep ^{cut} well and then walked up a cow path along the gulch first N. and then mostly east to another turn in the gulch and ^{then} on the opposite side we found a good place where the limestone broke up under the weathering and forming the fossils. Astragalinus, Fusulina elongata and another Fusulina are common. Also got Rhynchonella, one m. sp. of Aulostyrax, Entolites, Hustedia meeki and many other fossils. All in Permian in aspect.

All of these fossils ^{are said to} come out of the zone 20 feet of the Wolfcamp, just above the thick bedded terminal limestone of the Upper Gaptank. The basal ^{Wolfcamp} ~~limestone~~ 6 to 8 feet thick is solid bedded, or rather yellow and yields its fossils in a siliceous condition. The basal part of this limestone has a limestone conglomerate ^{1 to 2 feet thick} which rests on the Gaptank ^{thickly} in a decided erosional unconformity. Sellards says that the Wolfcamp appears ^{to have a} different attitude and cuts diagonally across different beds of the Gaptank. In any event the Wolfcamp fauna is decidedly different from



the Saptank one. The line breaks in a considerable length and easily separates the Permian from the Pennsylvanian.

Then continued to the "Unconformity Hill" described on Monday that is 23.4 miles N.E. of Marathon. Bellairs and Baker are now satisfied that while the ^{strata in the} hill looks like a genuine unconformity, yet the upper li. may have its present position due to folding and possibly overthrusting.

Then I walked along the road towards Saptank to see if the "Tennessees" had any fossils. He found none. At the unconformity the Tennessees stands vertical and on the next hill with the strata dip S. Getting over the crest of the hill the strata dip again N. at low angles to reach the place where we collected fossils on Monday where they stand over-cast. All of this we had seen farther east and it did not cause me to change my ideas that this "Tennessees" is single Saptank = Pennsylvanian.

At night packed up preparatory to leaving the Glen Hills tomorrow and put up at night at some place to the E. tomorrow to San Antonio.

In going to this place we entered north on the
Saptank road to a place 2.5 miles N. and
then through a gate. It was then 6 miles W to the
base of Leonard Mt to see the outcrop of "Tesnus".
S.E.
^

Here the Tesnus strikes S. 10 W and goes under
the Hess which is nearly all li. with fossils that are
used to improve the pit out.

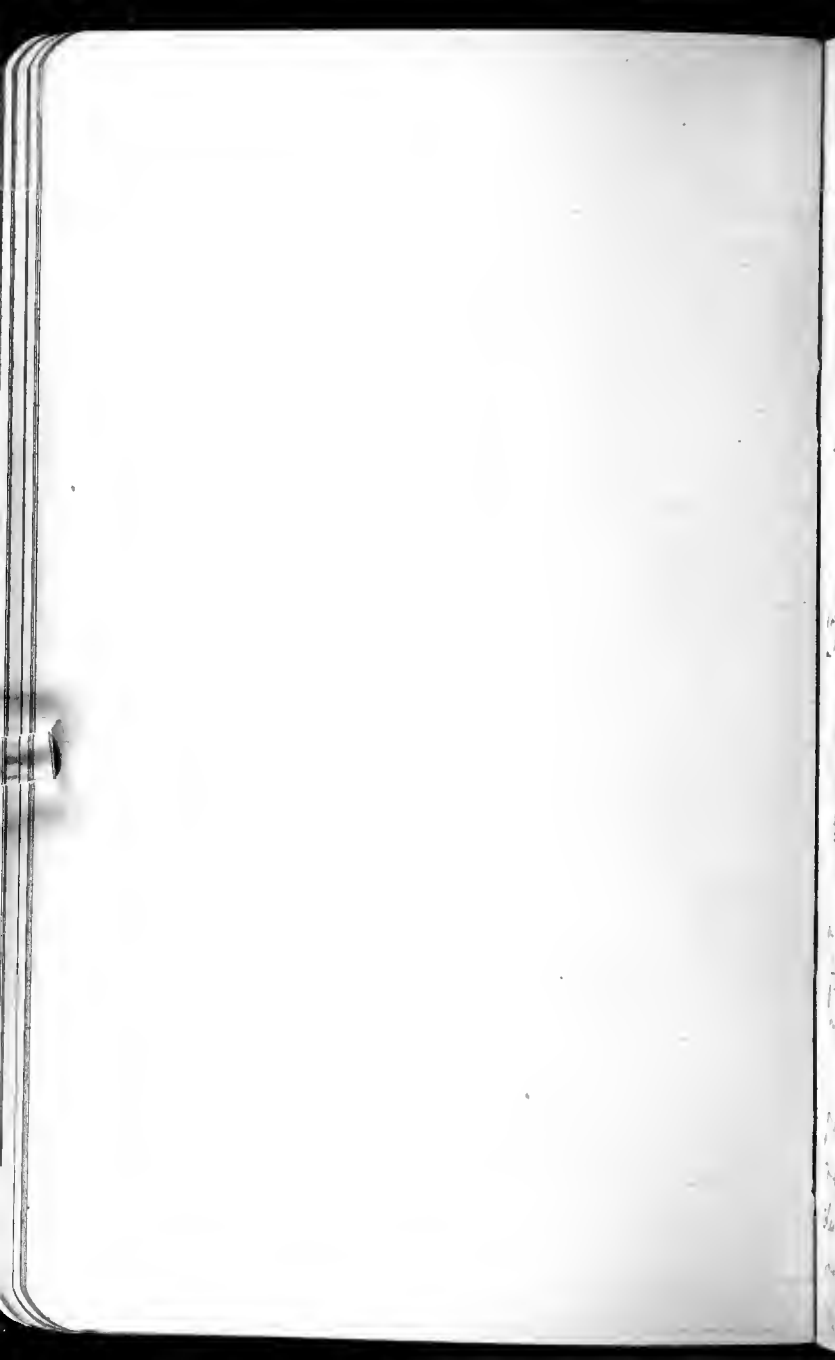
See the small collection of Ximple fossils.

The question here is, Is the "Tesnus-Ximple" of the
Leonard Mt area the = of the Ximple and Upper Saptank?
Or is the Saptank another series above the Tesnus
Ximple? Probably there is but one series, named
Tesnus-Ximple, and that the whole of the Saptank
is equivalent to the former.

Alpine, April 9, 1926. Friday

Went to Leonard Mt. to see the little tilted and more or less crumpled Permian ^{Simpson} series under the Mass of the Permian. The Mass here is the basal Permian, is about 300 feet thick and to the S.W. varies over a few miles. From Leonard Mt N.E. the thickness increases to about 2000 feet and has beneath it the Wolfcamp of the Permian and the Upper Gaptank not to say anything of the Lower Gaptank which may not be = the Hennes-Simpson series.

The "Tesnus" about Lemaud Mt is ^{composed of} sandstones
more a less fine grained and appears to have no
fossils. Apparently higher in ^{the} ~~imposed~~ ^{= Olimpie} ~~first~~ ^{series}
but are also more a less ^(maybe 20% in congl.) ~~conglomerate~~ ^{and}
these limestones are in large part made of a debris
of fossil fragments. Most of these fragments are tiny pieces
of small crinoids, and very rare bits of small
brachiopods that were ^{products} of the Cong
group, and Rhynchonella like Lepidodendron. ^{These}
spicules are very common in certain layers, in
supposedly the lower limestones believed to be of the
Olimpie formation. Very rare does one see a crinoid
stem about 1/4 inch in diameter. This "Simple li"
appears to me to be of a shallow sea bottom that



Alpine, April 7 - 1926 Wednesday.

Spent the day 3-4 miles W. of Marathon to collect fossils out of the "Tesnus", and all that we saw showed that this Tenus = Saptank and in all probability the whole of the Saptank.

First collected along the Alpine-Marathon road about $3\frac{1}{2}$ miles W. of Marathon. The strata are well exposed in the road ditch in a horizontal attitude ^(of a syncline) and composed mainly of green shales with fossiliferous thin beds of limestone having the fossils. But a few more on the ^{1st} hill slope above. It is the Saptank fauna and probably Sap. Then crossed country to the S.P. R.R. cut at mile post 580. Here the strata are vertical, shales, conglomerate (about the bed of small rounded rocks) and thin sandstones. But a few fossils ^{in part, as} Trinacromeris and Fusulina cylindrica.

On the south slope of this 580 mile post cut there is a limestone block out of which Blanchard collected for some time fossils. Reyle is said to have many more. This loose block came out of the railway cut.

Then went to the hill about $\frac{1}{8}$ mile farther S.W. from mile post 580 to see the unconformity discovered by me two years ago. After much work of all we concluded that this angular unconformity is due to overfolding and thrusting ^{of an anticline} producing an apparent unconformity. In the vertical strata beneath the uncon-

was continually churned up, & all the life
in it, earliest stages. Nothing had time to grow
to maturity, excepting the gulf weed, things
like *Rhynchonella* and small forms of *Favosites*.

I saw no fossils although *Fusulina* ^{very} *crustacea*
looked for and got I am certain that the bed
is of Pennsylvanian age. It is impossible to say
where it is, the Penn. *very* *crustacea*, but the best
of specimens is a *crustacea* *crustacea* *crustacea* *crustacea*
that the *crustacea* is probably; *crustacea*
time.

The Iron Ore intended for use does
not appear to have a special strike and dip of
the Permian strata, but has a local trend which
at first gave me the impression that it was a
Permian *crustacea* *crustacea* *crustacea* *crustacea*
in Pennsylvanian time. It is a *crustacea* *crustacea*
Blanchard of this date in the *crustacea* *crustacea*
impression that it is a *crustacea* *crustacea* *crustacea*
except I can see no recognizable strata to make
out its trend. It is a *crustacea* *crustacea* *crustacea*
dike of the same *crustacea* *crustacea* *crustacea*
growth. See what is said in *crustacea* *crustacea* *crustacea*
the *crustacea* *crustacea* *crustacea* *crustacea* *crustacea*
mountains. See for more this page later. →

Then continued to Roubidoux Creek to see the Roubidoux
Creek shales with interbedded sandstone. These ex-
posures are south of the J. & W. R. and east of the
S. of Haymarket and to the west of the Anva-
cutille series. Most of the shales are olive green
shales with an occasional black one of
less than one foot thick. There are many sandstone
horizons to be expected from the region. The sand-
stones are also greenish and weather to a yellow
and are in zones from 2 to 10 feet thick. They have
bits of plants some woody impressions and others
that look like charcoal. Both the shales
and sandstones are very fine micaceous. Saw
no recognizable fossils or large fragments of plants.

Then continued past Haymarket Station and
N.W. to the ^{new} State Road where a large hill side section
cuts across the simple range of hills. Here the
first main of material is dark bluish in beds
from an inch up to a foot thick or more separated
by less dominant shale partings. Apparently in the
higher strata these beds become more lumpy but
saw no fossils. We also saw at least five feet
of a clay that suggested a decomposed ash. There
are in zones from 3 to 6 feet thick. Silliman's town

samples of two : then to see what they are
made of. Taken in and what the scales of them.

The Thorus-Dimple series in its eastern
or typical exposures gave us no idea of their
age. Their general lithology ^{doesn't} suggest the western
"Thorus-Dimple," but the stratigraphical relations of this E.
series is ^{in line} with the western Thorus and Eaptank series.
That is, the western Thorus and Eaptank series.

At 3 P.M. we left Messrs. Blanchard and
company who returned to Elgin. Dillards
and I then retraced our ^(4 P.M.) journey and
finally at 8.15 we arrived at Comstock where
we stayed for the night.

It was just about the dark to appreciate
the beauty of the Rock River as we descended
into the gorge and then up to some miles to the
south of the J. R. H. bridge. The road down
and out of the canyon has cost a great sum
of money.

Kings Geological Map (N.S.) of the Altuda
Quadrangle (April 11-1926).

Syenite porphyry of Iron Mountain. Accord-
ing to the Hadden and Hadden map the syenite in
one place or another throughout the Iron Mountain region
cuts all formations up to the Comanchean inclusive.
Therefore is of Post Comanchean age.

Kings map shows no sed. formations in contact
with the syenite other than Quaternary materials, talus
and alluvium "wash". To the N. of Iron Mt. the dike
cuts the Leonard, and even the Permian. In the ex-
treme W. of the sheet another dike cuts the Leonard.
None of these are connected with faults. Therefore
these syenite rocks are clearly Post Comanchean.

Kings distinguishes between a "Lower Pennsylv-
anian" (= Tennessean and Kimple), and an "Upper Penn-
sylvanian" (believed to be Saptank), and says the two series
are separated by an "unconformity". But at San
Lancillo the Leonard is the Permian to the Leonard
S.W. of Iron Mt.

In this Quadrangle Kings has no Postcamp,
nor Hens, nor the Terminal Williams and Tenny.
Leonard Fm. to N. and S.W. of Iron Mt. Ap-
pears to thin to W and finally near a fault
7 miles W. of Iron Mt. as seen at the dike (N.S.)
It is again seen 2 1/4 miles W. of Altuda, west of

S. P. W. R. on James Ranch.

Dard. Fm. goes as far W. as 1 mile E. of Altuda. Again on the other side of the valley to W and S.W. of Altuda. There are continuous.

Vidua is partly the Permian on this sheet. Above it lies a thick and more or less series whose age is unknown. It is overlain by the Comanchean.

Saturday

Comstock - San Antonio, April 10, 1926, 1

Left Comstock at 7:30 A.M. Got to Del Rio, 30 miles E., at 8:30.

The small Euogysa arictoria slab is from 5 miles W. of Del Rio.

From Del Rio to San Antonio it is 161 miles.

About 15 miles W. of Uvalde we stopped at the large road metal quarry in the Anacheria limestone of the Upper Cretaceous. Here the lower 12 feet of li. are changed to an asphalt and this porous li. bed is the good illustration of an oil bearing rock.

It is this lower ^{zone} that is quarried and the overlying material is stripped away. The section here is about as follows:

Soil about 2 feet

Chalky li., about 5 feet.

Impure clay 7-10 feet.

Asphalt li., about 12 feet. Have of this ^{zone} ^{stripped} ^{about} ²⁰ ^{feet} ^{by} ^{the} ^{quarry} ^{men}.

Five miles E. of Uvalde, passed a great plug of extrusive basalt of the Texas Trap Rock Co. North of it is in Columbia Pillars

In detail see Walden Hill and account
to Am. Mus. The plug is in the zone of the Bal-
cones faulting. Other plugs ^{elsewhere} are altered to
Serpentine. See the sample. Said to be
the hardest road metal in America.

Got to San Antonio at 5 P. M. Put
up at the Guenter

San Antonio, April 11-1926. Sunday

Left the hotel at 7.30 and then looked at the City Park with its historical garden, a unique park. Then passed the great Army Post and then 86 miles N.E. to Austin.

Arrived at Austin at 11 A.M.

Spent most of the afternoon with Keith talking over what to do.

In the evening Keith and I called on the Sillmans.

Austin April 12-13, 1926. a small amount of packing the fossils and selecting Permian material out of the collections at the Bureau of Economic Geology, Texas University. Made lists of Captank fossils, Wolfcamp fossils, and selected for identification a lot of Upper Permian fossils.

On April 13 bought nine Comanchean fossils of Mr. Bill. Paid him \$30.00 for this lot, and previously I paid him \$60.00 for the first lot of Comanchean fossils.

Gave Philip B. King \$200 to have him and his brother make me collections of Permian

forms in the Glen Mountains. I am to write
out for him what I want to have done.

I have packed today six boxes of fossils.
Then here is the big box with books and maps
and some fossils. Finally there are four ad-
ditional boxes of Cimauean fossils collected by
A. A. Brill and In all there are
eleven boxes to go by express to Yale (11 boxes).

Philip B. King's brother was given by Yale a \$300 Scholarship and is to turn up at Yale in the Fall. He is to bring on his unwieldy Permian collections to work them out at Yale. P. B. King will turn up in the fall of 1927 at Yale. He is a very promising geologist.

Austin, Texas; April 13 - 1936 Tuesday

Had Philip B. King to lunch to talk over the Carboniferous of the Permian Mountains.

He draws it safe for the present to regard the Tornus-Himple series distinct from the Saptank, and the two series separated by an erosional unconformity. In places he finds no Himple but little Himple beneath the Saptank which can then be explained as eroded out before Saptank time. Finally the lithology is different, the Tornus being more sandy, more chylomatic and cherty, while the Saptank is a series of alternating shales and limestones with fossils, usually in abundance while they are rare or absent in the Tornus-Himple series.

He knows of no angular unconformities between the Himple and the Saptank; only an erosional one.

Both the Tornus-Himple and the Saptank show folded topography, which means an erosion prior to time. He has at least three places in the Altuda Quadrangle to the W. and S.W. of Sun Mountain where the Tornus-Himple and Saptank series go as far beneath the Permian series which in this case means Leonard formation.

Rebonds will ship my eleven boxes
of prints and books by Express.

Austin, April 15-1926 Thursday

Attended Keith's lecture last night and then he walked with me to the Baker Hotel. Had some ice-cream and at 10 P.M. we said good bye.

This morning I am up and at 11 A.M. Sellar's calls for me and takes me to the depot. Just a little before the train starts Mrs Sellar's comes to say good bye. We were talking to Hadden's son when she came. Mrs Sellar's assures me that I made many friends at Austin and that I helped along geology a great deal.

At 11.30 I am off for St Louis in a Pullman. The day is bright and cool - never all at once cool in the State at this time of year.

Got to Dallas at 2 P.M. Off again at 5.05 P.M. Retired at 8.40 P.M.

En Route to Cincinnati April 16-1926

Got up at 6.20 A.M. when the train was in S.W. Missouri. The day is bright, cool, and there is hardly any budding plants. A few fruit trees about houses are in earlier bloom.

Left ^{at St. Louis} ~~at~~ B and O. at noon to get to Cin. O. at 8.40 P.M.



Cincinnati, O., April 17-18-1926

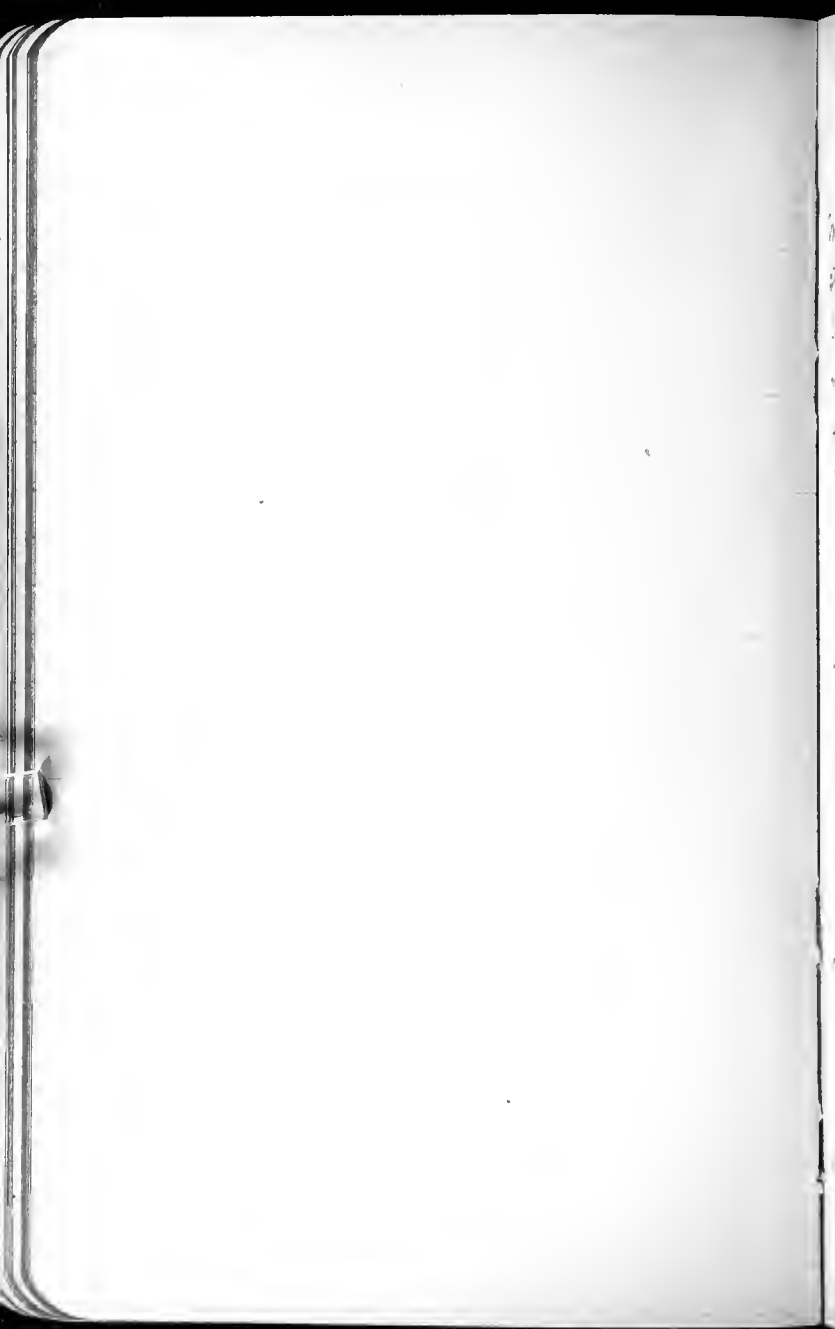
When the train got to Cin. I met Emma, Alice and Albert at the station waiting for me. Then in Albert came to his home in Mosbrook.

April 17. After breakfast Albert took me to the Westlicht Gallery where I staid for an 1/2 hour. Some excellent art here, but outside the picture all displayed 'poor'. Because of this and general lack the museum lacks inspiration and effectiveness.

Then I looked around town and 12.30 met Albert at the Edison Hotel where we had lunch. Then out to Brother Phil to talk over some things in the future. His looking that he is broken down and as he is for the best thing to do is to quite all duties. This he will do on Monday and resign his job with the Dodge Co. I am glad that he has come to this conclusion even though in the end I would like to help him financially. Then we went back to Albert's home.

April 18, Sunday. Spent the day in Emma's with Phil's and Albert's families present. Had a grand dinner here and finally a light supper. Everyone induced Phil to quit smoking and repair his health.

It rained hard last night and in the morning it snowed a little.



Cincinnati, April 19, 1926, Monday.

The day is bright but cold - below freezing. At 9 A.M. I leave Albert's home, and he takes me to the railway station. He was to meet me at the Wilson Hotel for lunch at noon, and I waited until 12:40 but he did not turn up. Walked to the depot, had a little to eat and thought on the train wondering and wondering about what became of Albert. Five minutes before the train pulled out he turned up, when he had been badly cut on the right hand by a razor barbed - the blade slipped and a gash $1\frac{1}{2}$ inches long almost down to the bone. Why does Albert not show himself, and why does he go to a razor barbed? I did not tell him these things, but the evidence shows that Albert is born a liar. When the train pulled out I was alone but, we come with worry.

Wrote to Pullman - it arrived. Left to Columbus at 4:20. Got out at 9:10.

April 20-1926

A fine morning at Albany. The Catskills are all white with snow and look large in the morning light. He got to N.Y. City at 9:40 A.M.

Left at 10 A.M. for New Haven and home once more.







2776½



YALE UNIVERSITY 3820 PEABODY MUSEUM

DATE:

April 14

NOTE BOOK

1926

PAGE

Loc. (57a) Adam Pt. ^{about 15 miles} S. of ...

About 100 feet higher than

Loc (51) About 800 feet above
base of ... formation

COLLECTOR

C. S. and Ray Baker

Doc. 133

UNIVERSITY

189

189

189

189

DATE:

NOTE BOOK

PAGE

Highly to be recommended
For details see note book

2007 Jan 15 in map
Lamp had 1000000

COLLECTOR

Director
C. V. and Janet Blankenship

10/11/1944

doc. 133

MTIPOBHMJ EIAV

10/11/1944

10/11/1944

BTAC

10/11/1944

YALE UNIVERSITY 3820 PEABODY MUSEUM

DATE: April 4 NOTE BOOK 1926 PAGE

Lec. (57a) about 4 miles
about 100 feet higher than

Lec. (57), about 860 - base of Leonard formation

COLLECTOR

C. S. and Ray Baker

Doc. 133

ПІСЛЯДІЙНИ

1700

DATE:

April 4

NOTE BOOK

1026

PAGE

Higher than Loc. (10) in Leonard
 Formation. For detail see note book,
 760' above base of Leonard
 Loc. (17) also in mab.
 Located 1/2 mile N.E.

COLLECTOR

C. S. and Neal Blanchard

Doc. 133.

YALE UNIVERSITY

| 3820 |

PEABODY MUSEUM

DATE:

April 4

NOTE BOOK

1936

PAGE

Higher than loc. 57 in all and
formation. The detail see note
book. 760' at base of the road

Loc. 57 has its, in maps
corrected by the writer

COLLECTOR

C. S. and Frank Blanchard

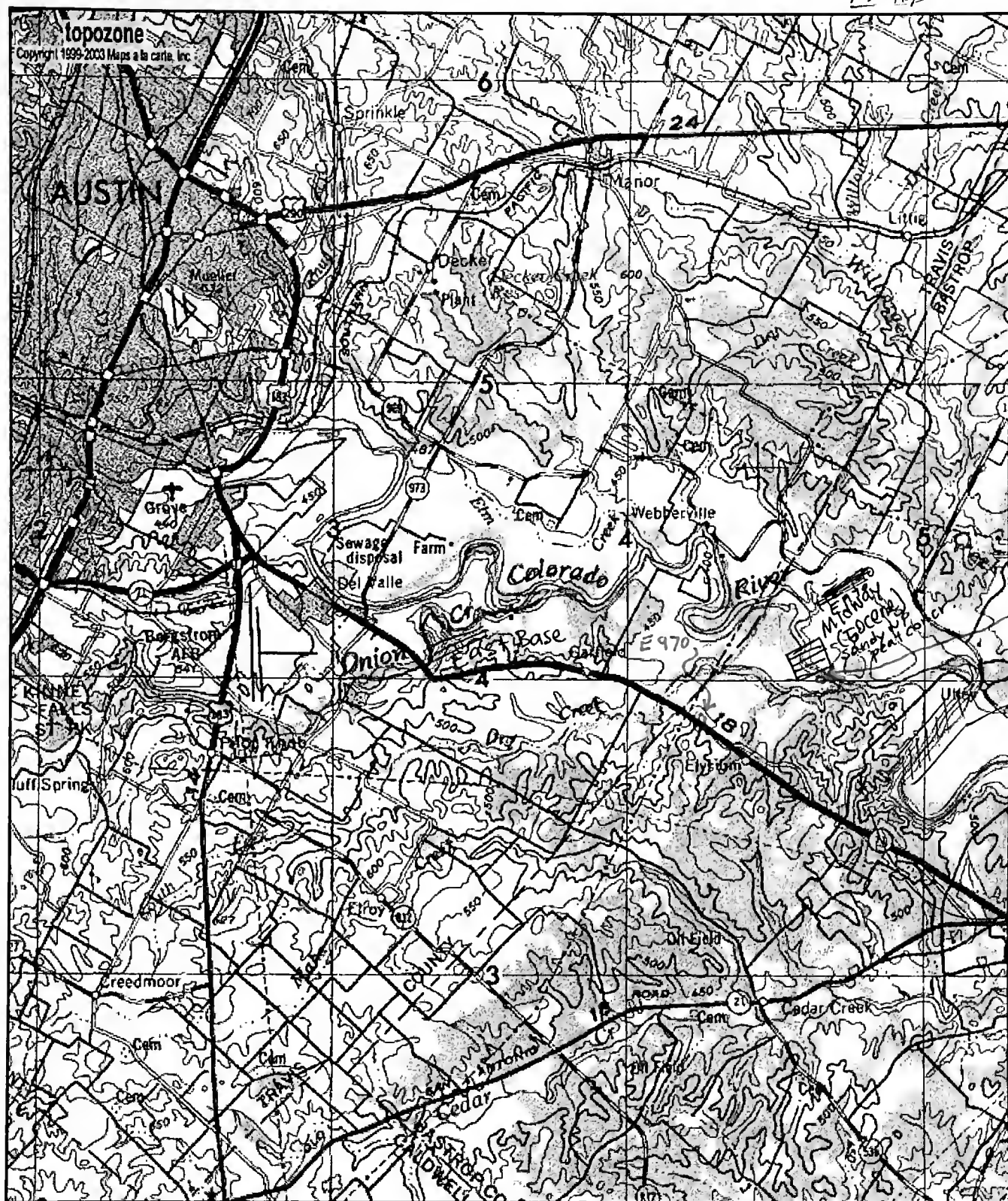
Doc. 133

YALE UNIVERSITY

1714

1714

1714



0 3 6 9 12 15 km
 0 2 4 6 8 10 mi
 UTM 14 635930E 3342430N (NAD83/WGS84)
Onion Creek, USGS Webberville (TX) Quadrangle
 Projection is UTM Zone 14 NAD83 Datum

M=4.946
 G=0.711

{E971
 E972
 IPE.971
 &
 IPE.972
 w/er
 COR. 6
 RIV

→ "Caldwell knob"

2640
 2, 5280

h

10

19E.00970

3776

Midway (Eocene)
of labels

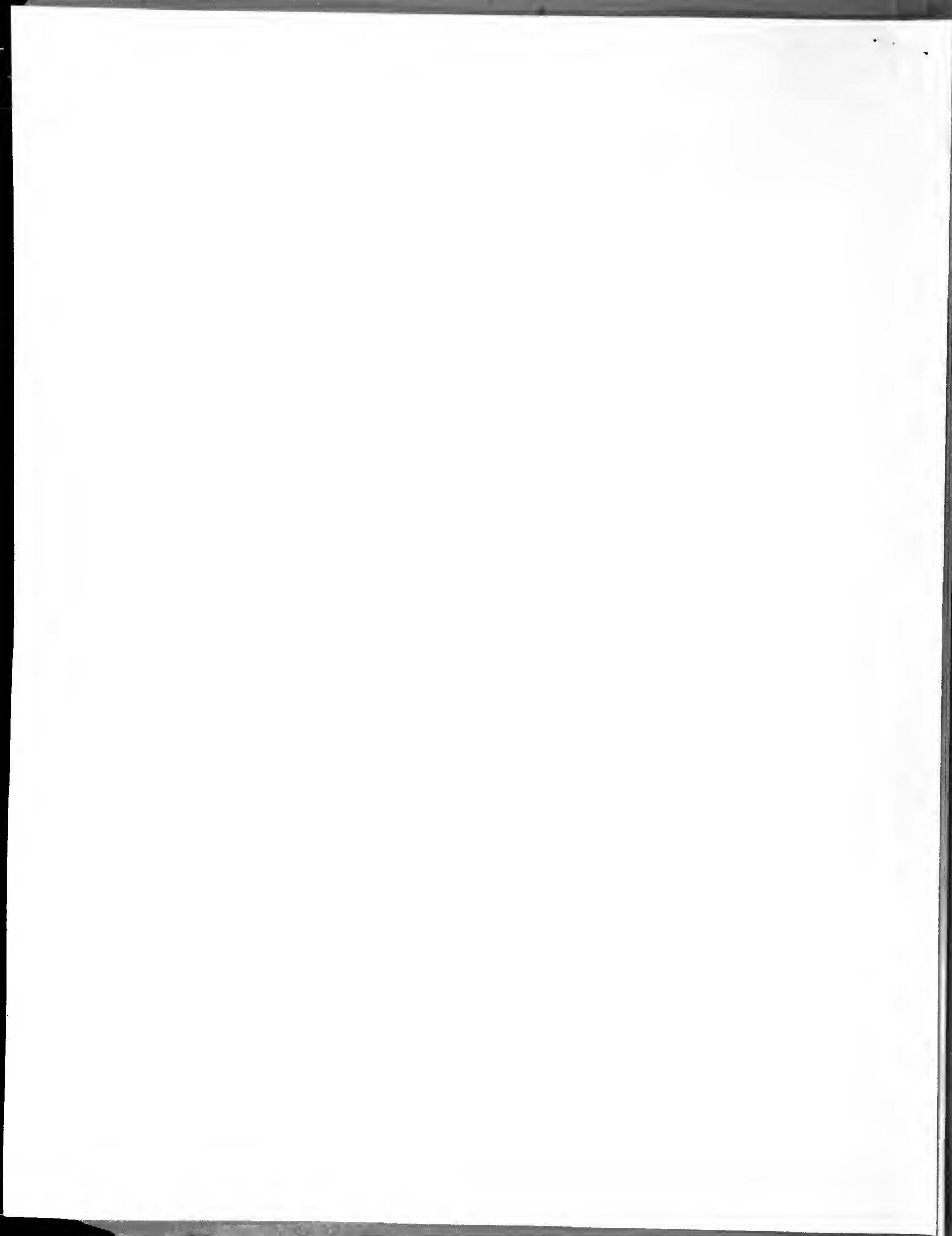
Starting up the Cañon de Chino, we are met by
E. longi caetera, and then on the Colorado River at
Montopolis. To Odessa and across Chino
Creek to the first marked place across the river. The Huft
from Chino Creek that runs from the Colorado River,
the Huft is known as East Base and is a thin, red, thin
section. The bottom is lower than the river, but has
Exogyra costata and an E. ponderosa = Taylor.

This side is clarification
after return to Yale.

Friday, Jan. 15-1926.

This
side's
field notes

Today, and leave at 11:30 AM.
We went on to see some fossil collecting. Found
along the creek side. The Colorado River and at
16 miles from Chino, we turned in to the bank of
the river, where there is an exposure of a red
30 ft. high of the Chino formation. The
of the Chino, it is all a soft blue clay
with no hard nuclei at all. Some thin green fern
that probably have more than one species of the
fossils that we also find are Exogyra 12 species,
that is about the cases have been found. Found
fossils in the Chino, we have Tritonia and a
piece of a radiolite like shell, on the more thin
fine there are an abundance of small things, mostly
fossils with arm tubes of Stomatia. The sea
bottom was a soft mud bottom, and I failed
to see to what the Exogyra were attached; all ap-
peared to have been buried about 10 in. from
the bottom, and this was seen at any time of day.
Just about this was outside of the Chino, we were
in regard to the shore and sand cannot make out
I must have been into the water with shells.



Then left East Base and found Rockfield and
Eligium - Coldwater gate. Then ^{with} in the ^{direction} of the
to a bend in the Colorado River east of the
boundary between Texas and Ariz. My
back bones in a little ^(in fact) farther down stream, we
Bostick's Swamp, (Jim Rodden call this the
One half mile the mouth of Old Creek and $3\frac{1}{2}$ to 4
miles down stream to Bokehville, Colorado River.

Above the Paroicandia bella bird is a "dark
 gray sandy blue," and above that "a quite similar bird
 characterized by the greater abundance of the small
 flatellum conspicuum paraphan." Above Saudan
 two to Fernando, 1 egg, at least 5 poliocephala, and
 16 gastrophysa, "The Andriana bilens contact hilaris
~~was~~ all for holes," means down straw, for my
 friends come from Andriana.

IMPORTANT
to you?

1PE.972

1PE-971

IRE 970

[illegible]

above the Phoenicaria bed, ^{about 2 feet} in a very fine grained
flavescite zone of which are our well made thin 5
foot and ten collecting areas out of the central zone.
Here many small ^{small} fossils, ^{small} fossils and smaller
bivalves, many other animal species of our decalcified...
The clay mounds are most and soft for descent if

as fossils will preserve on their way to face.
Stenaminipora (*Stenocaria* up to $3\frac{1}{8}$ inch long) were

common.

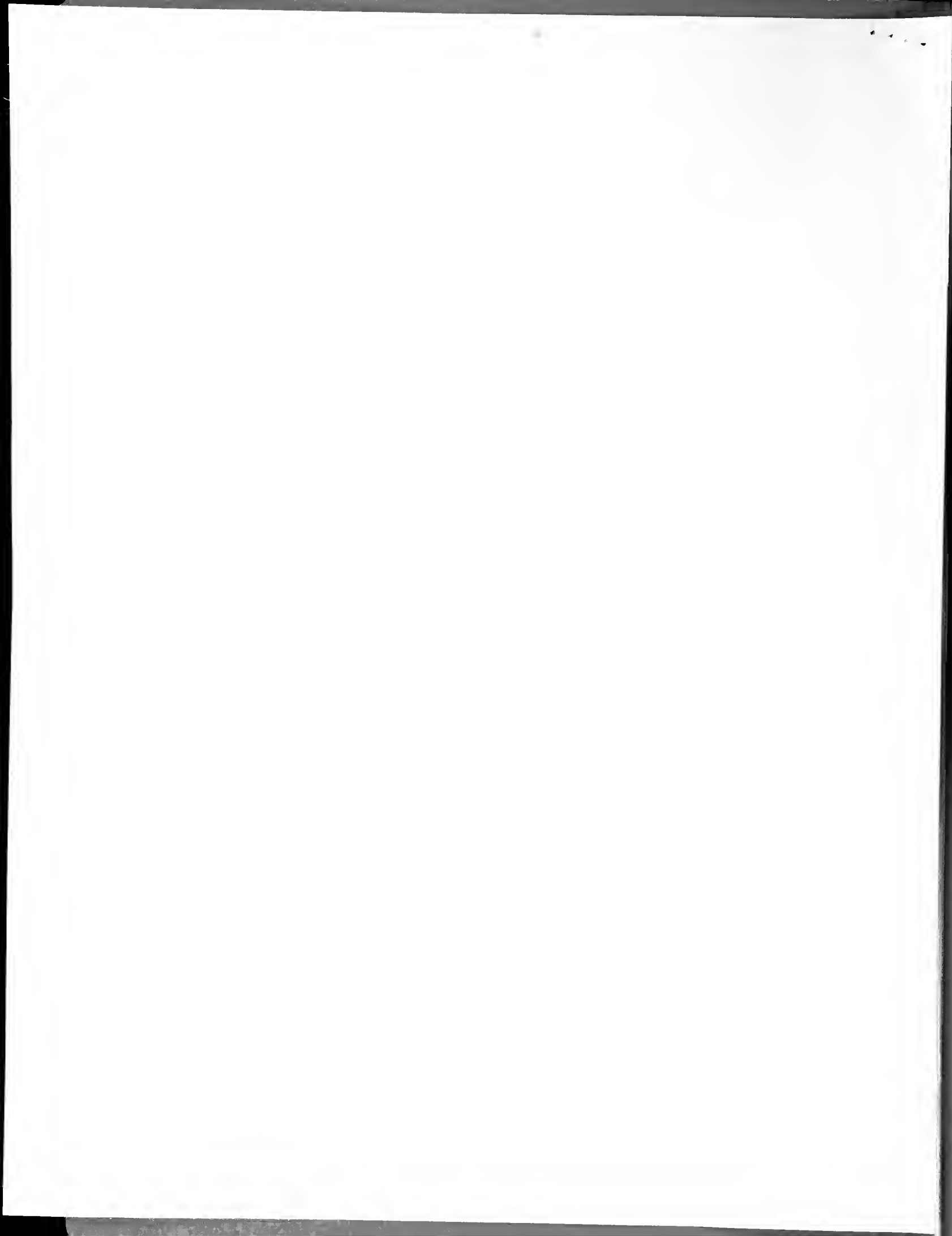
Should have done here in to get into the floor.
Came in *Theraps* and covered with *Platystrophia* and *Strophomena* and then cleared off home. When this is done down
some 700 to 700 species only the new ones. It
is said to be the finest *Onidoreas* place for fossils.

Then are ordered out to the *Hydromedusa* and
about 2 miles further S.E. to a small head near N.
Along this road are about 200 to 250 miles. To look
up the way there is a small and long head *Estia*.
They make heads from a few feet long to 10 to
10 to 20 feet thick in the *Hydromedusa* formation. This
is *O. heavy* *head*.

In the morning had a long talk with one of my
very students *Cliff* (M. *Steele* about some fossils

Schochet - A
man thinking
ahead of his time!

Then out to the highway and U.S.F. to the road going to
head's Ferry across the *Delaware* River. It was old the
Memphis *Phaenice* that we got the *Hydromedusa*, some *hemi-*
chords of *Hydromedusa* the *Phaenice* of the *Delaware*.



BOOSTS CROP PROSPECTS

Snow Jan 23-24-1926.

Ranks of Snow-Men Appear
As Austin Celebrates
25-Year Record Fall.

Old and young in Austin continued a winter frolic Sunday as the heaviest snow of history in this section of the state melted under the sun's rays which appeared from behind grey clouds Sunday forenoon for the first time in over 36 hours. The record breaking snow which began falling at 6 o'clock Saturday morning continued steadily through Sunday night and until 9:30 o'clock Sunday morning making a continuous fall of over 24 hours and spreading a six inch cover of white over the city and surrounding country. According to old-time residents nothing comparable to this blizzard had ever been seen here.

Youthful residents of the university district and the downtown section, reveling in the heaviest snow seen here and the first real snow of the year, seized the opportunity for winter sports and although their equipment was hastily improvised, several sleds were seen on hills of the city Sunday morning before traffic had changed the six inch snow into dirty slush partially covering the streets and filling gutters. The principal sport of the morning was snow-balling automobiles and pedestrians, and both in the university district and downtown, of making hundreds of "snow men".

Downtown Battle Ground

The corner of Seventh and Congress avenue became a snow-ball battle ground about 10:30 o'clock Sunday morning when groups gathered on opposite sides of the street and pelted passing automobiles or threw snow balls at the rival group. Later in the morning young men had lined each side of the block between Seventh and Eighth streets and were showering automobiles with snow balls from the time they entered the block until they left it.

Snow Sculptors Revel

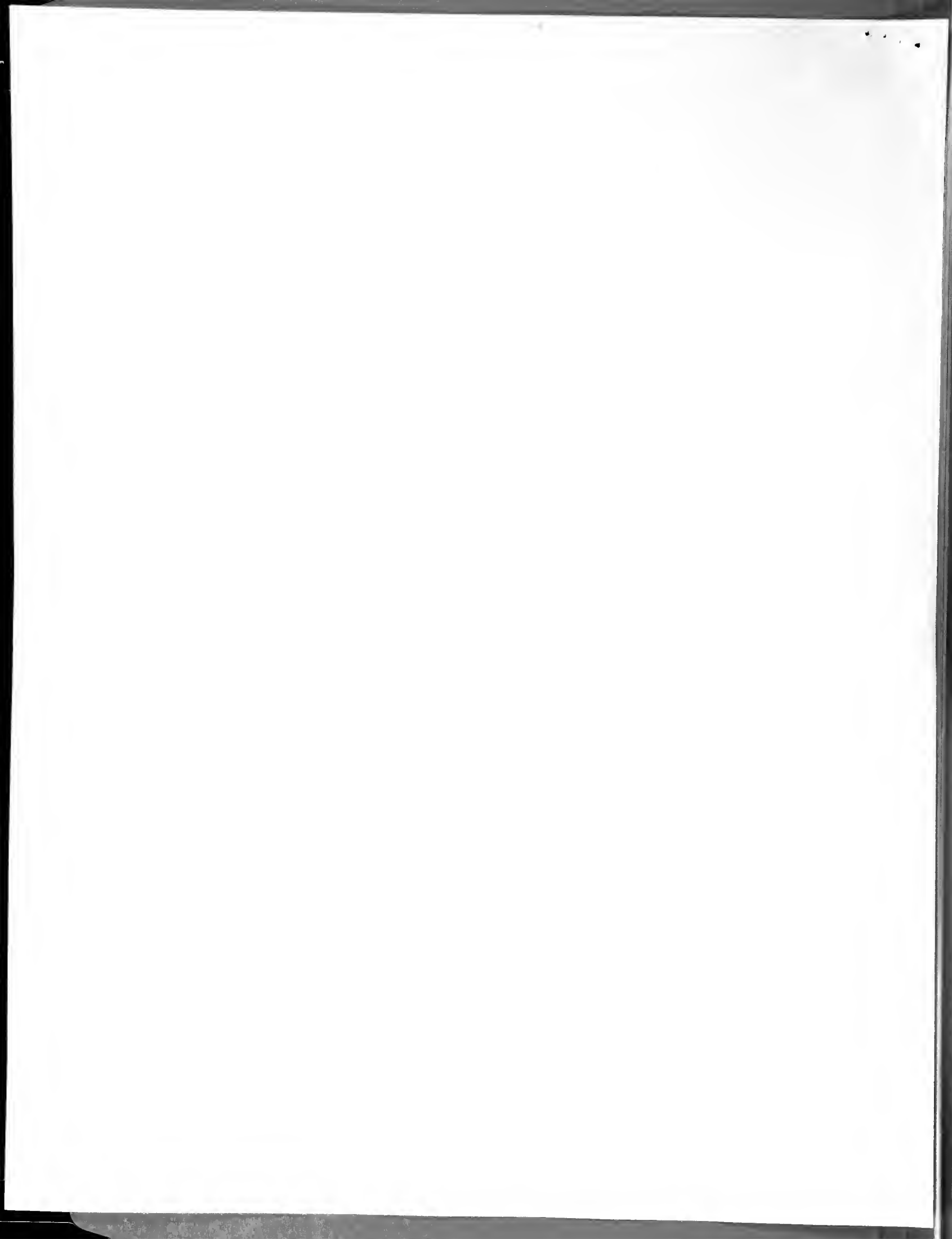
Snow men in the yard of Roy A. Miller, 604 West Sixth street, and at the Central and Guadalupe street fire stations, attracted particular attention. That at Central station was more than 16 feet high and 22 feet around at the base. Young women on Twenty-sixth

Austin received a total fall of seven inches of snow during the snow of Saturday and Sunday, according to available information. The fall in other towns and cities in central Texas was as follows: Lockhart, 6 inches; 50-year record broken; Blanco, 6 inches; heaviest in history; Elgin, 6 inches; Tynall, 5 inches; Bartlett, 6 inches; heaviest since 1917; San Marcos, 6.75 inches; Austin, 7 inches.

The following snowfall was reported Sunday: Johnson City, 2.50 inches; Cherokee, blanket of snow; Bertram, heavy snow; Floresville, steady snow; Elmendorf, 2 inches; Big Wells, 3 inches; Devine, 4 inches; Austin, 7 inches; Flatonia, 6 inches; Burnet, 6 inches; Bertrah, heavy fall; Taylor, 6 inches; Hallettsville, 2 inches; Northheim, 6 inches; Yoakum, 3 inches; Victoria, 2 inches; Comort, 10 inches; Bloomington, steady fall; Rockdale, 3 inches; New Braunfels, 2.50 inches.

Texas' Oil Wealth.

ACCORDING to the Dallas News in 1925 Texas produced 150,000,000 barrels of petroleum, the price of Texas oil throughout that year averaged about \$1.15 a barrel and on that basis the value of petroleum in Texas for that year exceeded \$250,000,000. Is there money in oil?



Subject: Re: YPM numbers....

From: "JOCELYN ANNE SESSA" <jas884@psu.edu>

Date: Mon, 18 Feb 2008 13:36:15 -0500

To: Susan Butts <susan.butts@yale.edu>

Hi Susan,

The trip to Texas was excellent, so much material to work with!! I have a few updates for you:

IPE.00971 & 00972 - I think are both the Wills Point formation. 00970 is likely Wills Point as well (I didn't actually see any fossils from this particular collection).

For all three, the county is mislabeled and should be Bastrop.

I didn't visit them, but these outcrops, or equivalent strata very nearby, are still exposed on the Colorado River. They are described in:

Zachos, L. G., C. L. Garvie, and A. Molineux. 2005. Definitive locations of Paleocene and Eocene marine fossil localities, Colorado River, Bastrop County, Texas. The Texas journal of science 57(4):317-328.

And of course, I have a question I can read most of Schuchert handwriting, but can't understand what he wrote on the page facing where you delineated the different locs - the last line says " So my fossils come from XXXX Midway" and you underlined it and wrote "important to you?"

and within IPE 971 "What we saw here was less than 10 ft of XXX Midway all XXXX (perhaps 'highly') fossiliferous"

I can scan the note page if you don't have it handy.

Much thanks!! I'll keep you updated on how processing and identifying goes.

~ Jocelyn

On Wed, Jan 16, 2008 04:51 PM Susan Butts <susan.butts@yale.edu> wrote:

Hi Jocelyn,

Mark has the white copy of the loan form in his envelope. You just got the "cc" letter, the "plan to publish" form, and the loc info. Mark, Please return that white loan form when you get a chance! Thanks! It's not particularly urgent (why do I ever say that??? it is like an invitation to ignore the form -- hey, get that form in ASAP!).

Have fun in Texas! Let me know if you have any modifications on the localities I made for the Schuchert locs (hopefully not "under parking lot of new housing development/walmart store/etc., Utley, TX").

Susan.

JOCELYN ANNE SESSA wrote:

Hi Susan,

I received the loan and the locality info today - much thanks! I am leaving tonight for a collecting and museum trip to the Austin, TX region, so having

the maps and Schuchert notes will be extremely helpful.

Yet another question (sorry!) -- in your letter, you state that Mark should return the white copy of the loan form to you. Is this the 'Plan to publish' form? I don't think that is the correct form...I went through the box of specimens and materials, but there is only a yellow packing slip in that box.

I'll be checking email when I can during my trip, and I've cc'ed Mark to this email in case something needs to be done immediately.

In any case, I'll be back from my trip and working on these specimens on Jan 23rd.

Thanks again,
Jocelyn

--

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